

AUTOMOTIVE INDUSTRIES

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DON BLANCHARD, Editor

F. M. HELDT, Engineering Editor
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GEOFFREY GRIER, Art Editor

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GEO. D. ROBERTS, Advertising Manager

Cable Address.....Autoland, Philadelphia
Telephone.....Sherwood 1424

OFFICES

New York—U. P. C. Bldg., 239 W. 39th St., Phone Pennsylvania 6-0080.
Chicago—867 West Adams St., Phone Randolph 9448
Detroit—710 Stephenson Bldg., Phone Madison 2090.
Cleveland—1140 Guardian Bldg., Phone Main 6860
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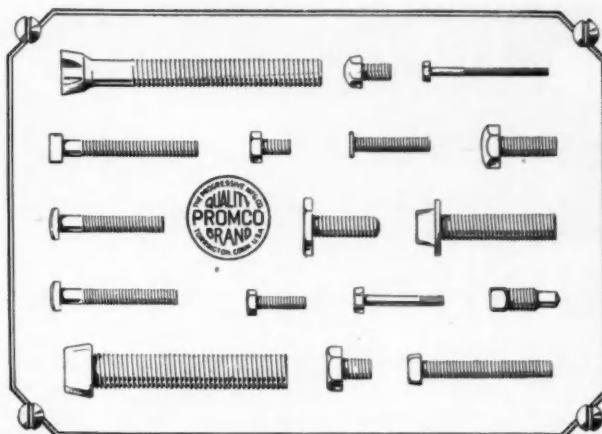
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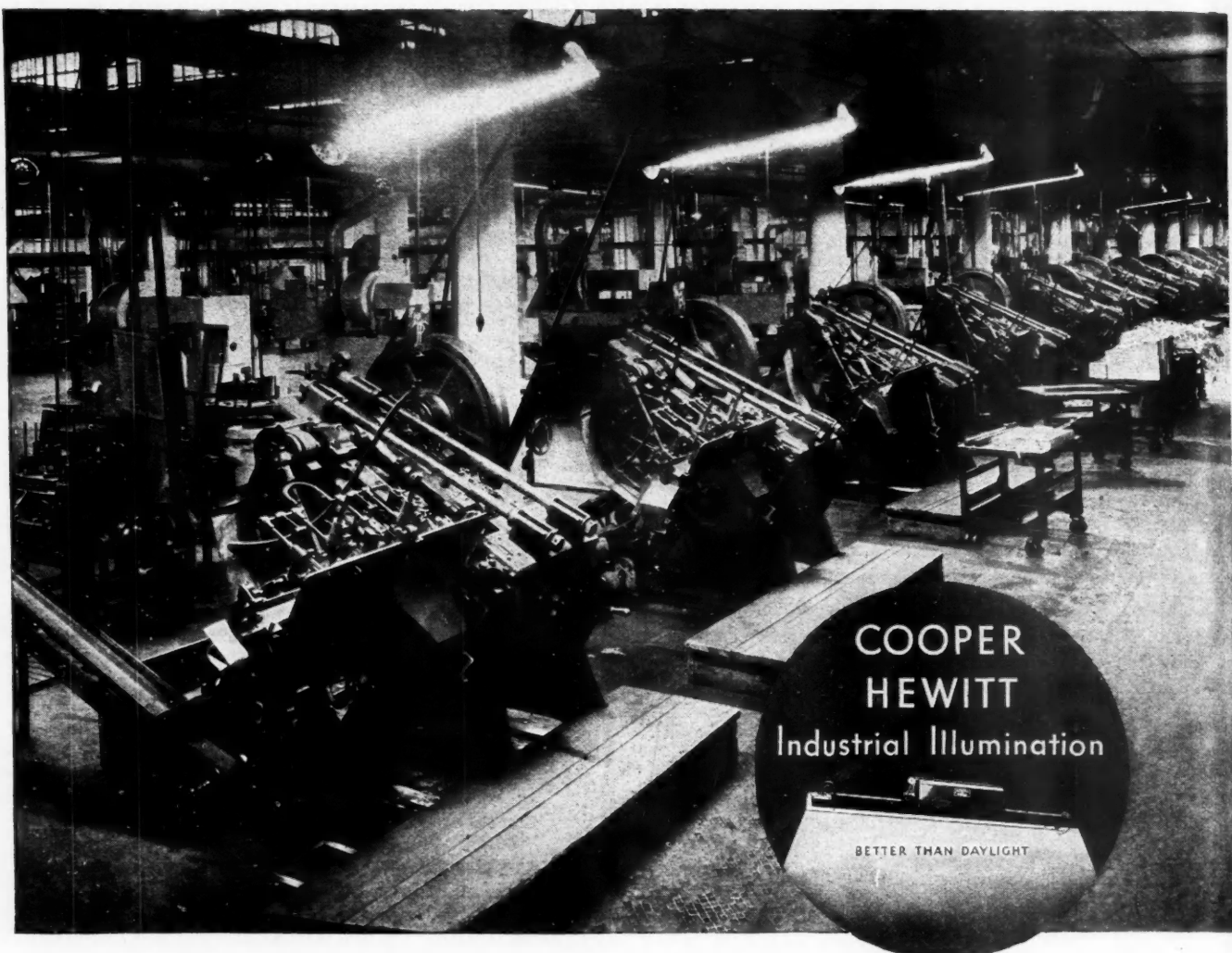
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October 21, 1933

Automotive Industries

Factories Will Deal Individually with Striking Tool and Die Union

National Labor Board formula also provides for immediate return to work—Knudsen and Macauley decline invitation to appear—Labor code barring intimidation is reported under consideration

By L. W. Moffet

Washington Representative, Automotive Industries

WASHINGTON—Settlement of the tool and die makers' strike in the Detroit area is to be attempted through negotiations between striking employees and individual automobile manufacturers. Strikers are first to return to their work before negotiations are begun. Automobile makers have not violated their code of fair competition.

These points reflect the crux of a formula agreed upon Oct. 18 at a hearing before the National Labor Board, headed by Senator Robert F. Wagner of New York. Neither Alvan Macauley, president of the National Automobile Chamber of Commerce and of the Packard Motor Co., nor W. S. Knudson, also of the National Automobile Chamber of Commerce, and executive vice-president of General Motors, appeared before the board, though they had been summoned by Senator Wagner. C. C. Richards, Detroit, president of the Allied Tool & Die Co., and Roy Wise, Cleveland, secretary of the National Tool, Die and Machine Institute, appeared before the board as did also a joint committee of five of the Die and Tool Makers' Union. The committee was headed by Matthew Smith.

The plan for settling the strike was not detailed by Senator Wagner, who told the press that a "formula" had been agreed upon in the afternoon during his absence from the hearing. But it was learned from other sources that the "formula" calls for return to work of the strikers and taking up negotiations with individual manufacturers.

Senator Wagner did not concede that his summons had been "resisted" by Mr. Macauley and Mr. Knudson. On the contrary, he stated they had telegraphed him that it would be "futile" for them to appear before the board because they had no authority to speak for the automobile industry as a whole and could speak only as heads of their own companies. The Senator expressed confidence that the "formula" would result in strikers and employers composing their differences.

The plan is for negotiations to start between the strikers and the individual automobile manufacturers before taking up negotiations with jobbing plants to which automobile manufacturers had "farmed" out tool and die work when it had been hampered by the strike. Mr. Richards and Mr. Wise made representations before the board on behalf of the jobbing plants.

The position taken by Mr. Richards and Mr. Wise is said to have been that the question of arbitra-

tion was not a point at issue inasmuch as most of the employees in Flint, Mich., had returned to work and that all of the strikers at Detroit had resumed their work.

Mr. Smith, speaking for the joint committee representing the strikers at Detroit, Flint and Pontiac plants, insisted that 17,000 men went on strike, of which 14,000 were in Detroit, the total representing between 90 and 95 per cent of all the tool and die makers in the affected areas. Only the Ford plants, he said, were not involved in the strike. His figures did not jibe with statements of the tool and die makers who told the board that when the strike was at its peak only 6300 men walked out in the Detroit district. They said no effort at collective bargaining was made by the men and that they had declined to agree upon conferences with manufacturers when asked by John M. Carmody, member of the Labor Board, had suggested that they do so. Inas-

(Turn to page 485, please)

Practical Methods for Determining a

by P. M. Heldt
Engineering Editor,
Automotive Industries

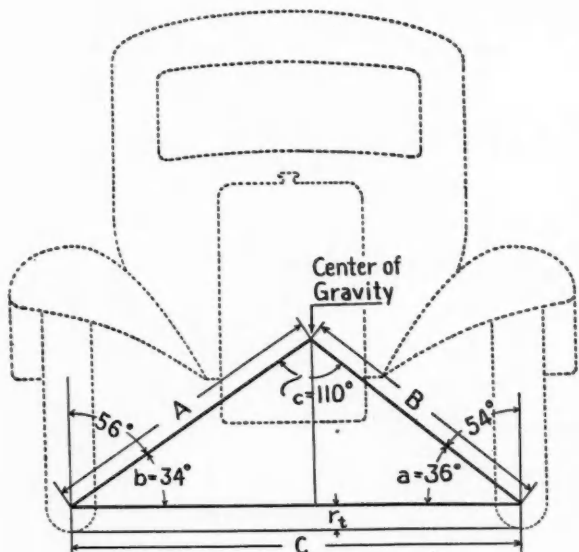


Fig. 1 — Determining center of gravity by tipping car until it balances on wheels on one side

IN the discussion of many problems connected with automobile operation reference is made to the center of gravity of the car and its height above the road surface. The height of the center of gravity is a factor, for instance, in the problem of the transfer of weight from rear wheels to front wheels by brake action, and from front wheels to rear wheels by driving torque, as well as in the problem of the limiting safe speed of the car on a curve of given radius, and in that of the banking required to counteract the effect of centrifugal force at turns. The tendency of a car to skid also is supposed to be influenced by the location of its center of gravity.

No difficulty is involved in determining the location of the center of gravity relative to the front and rear axles. All that is necessary is to weigh the front and rear ends separately. If the weight of the front wheels is W_f , that on the rear wheels W_r , and the length of wheel-base is w , then the horizontal distance of the center of gravity from the center of the front axle is $W_r / (W_f + W_r) \times w$, the principle involved being that the distances of the center of gravity from the two axles are inversely proportional to the weights on these axles.

The horizontal distances of the center of gravity from the vertical

planes through the wheel centers on opposite sides can be determined in the same way. In this case the weight on each of the four wheels is determined separately—making sure that the car is in a substantially horizontal position when the reading is being taken. The weights of the two wheels on each side are added together and we will designate the weight on the right-hand wheels by w_r and that on the left-hand wheels by w_l . If the tread is t , the horizontal distance of the center of gravity from the center of the right-hand wheels is $w_l / (w_r + w_l) \times t$ and its distance from the center of the left-hand wheels, $w_r / (w_r + w_l) \times t$. In

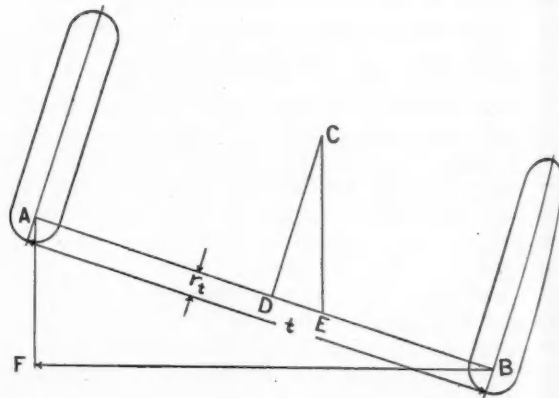
the majority of cases the center of gravity is, of course, substantially equidistant from the wheels on opposite sides.

It is more difficult to determine the height of the center of gravity above the ground, which is precisely the factor most frequently required. Various experimental methods of determining it are available, but all of them require "handling" of the car and call for a certain amount of equipment. Besides, all of them involve certain sources of error.

One of the simplest plans consists in tipping the car first to one side and then to the other, until it balances exactly on the wheels at the side toward which it is being tipped. To prevent shifting of weights while one side of the car is thus raised, the springs should be blocked and the axles strapped to the frame. Suitable safety provisions must be made so that the car when tipped cannot get "out of hand," fall over on its side and be injured thereby.

When the car is balanced on one side, the center of gravity is, of

Fig. 2—Determining center of gravity by tipping car through a certain angle and weighing loads on opposite sides



Automobile's Center of Gravity

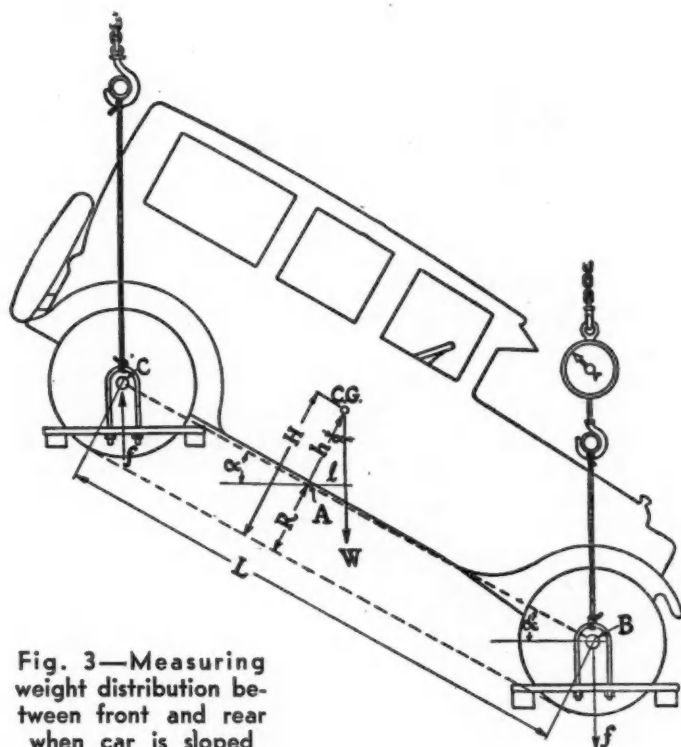


Fig. 3—Measuring weight distribution between front and rear when car is sloped

course, directly over the line connecting the center points of contact of the two wheels with the ground. As the car is being tipped over, the point of contact on each tire does not remain constant but shifts from the center of the tread toward the side. We can take care of this by assuming that the section of the tire is circular in form, so that whatever the degree of tilt, the center of the tire section is directly above the center point of contact between tire and ground. The distance between the centers of tire sections on opposite sides of the car is, of course, equal to the wheel tread.

Let us suppose that the car has a tread of 58 in. and that it is found by experiment that it will balance on the wheels on one side when tilted 54 deg., and on the other side when tilted 56 deg. We now construct a triangle (Fig. 1), using the width of tread, 58 in., for the base and making the two angles adjacent to the base equal to the complements of the angles of tilt, viz., 36 deg. and 34 deg. The third angle of the triangle, op-

posite the base line, is then equal to

$$180 - (36 + 34) = 110 \text{ deg.}$$

The center of gravity is located at the upper corner of this triangle. To determine the height of this corner above the base line we must first determine the length of one of the two sides.

By one of the rules for the solution of problems of oblique-angled triangles, the length of one side is

$$A = C \sin a / \sin c \\ = 58 \times (0.588 / 0.940) = 36.3 \text{ in.}$$

The height of the center of gravity above the base line (connecting the center points of tire sections on opposite sides) would then be

$$36.3 \sin 34 \text{ deg.} = 36.3 \times 0.559 = 20.3 \text{ in.}$$

and if we assume 6-in. tires, the height of the center of gravity above the ground is

$$20.3 + 3 = 23.3 \text{ in.}$$

The plan of tilting the car so it balances on the wheels on one side has a number of disadvantages, involving either a certain amount of risk or else the use of rather elab-

orate safety equipment. There is a method of circumventing these difficulties. This is based on the fact that if the wheels on one side of the car are raised above the level of those on the opposite side, weight is shifted from the wheels which are elevated to those which remain on the ground, and the amount of weight thus shifted depends on the height of the center of gravity.

It is assumed that the distances of the center of gravity from the center planes of the wheels on opposite sides of the car have been determined by the method outlined in the foregoing. With the springs blocked and strapped, the wheels on one side are now raised off the floor to a considerable height (say, 18 in.). Next the new distribution of weight between wheels on opposite sides is determined. This can be done by placing scales either under the raised wheels or under the lower wheels. The weight on the other pair of wheels is determined by subtracting the weights shown by the scales from the total weight of the car, and the inclination is measured by the elevation of the raised wheels over the lower ones.

We can now draw a diagram like that shown in Fig. 2. C is the center of gravity of the car; D, its point of projection on the base line connecting the centers of tire sections on opposite sides of the car, and E, the point of intersection with the base line of a vertical dropped from the center of gravity.

The distance of point E from the left wheel center is arrived at from the proportion of weights on the right and left wheels in the tilted position.

$$AE = W_r / (W_r + W_l) \times t$$

The length of the line DE is now found by subtracting AD from AE . The two triangles CDE and ABF are similar, hence

$$CE : AB = DE : AF$$

and

$$CE = AF / (AB \times DE)$$

Finally,

$$CD = \sqrt{CE^2 - DE^2}$$

and the height of the center of gravity above the ground is $CD + r_t - d_t$

where r_t is the radius of the tire section and d_t the deflection of the tire under load.

A third method of determining the height of the center of gravity has been developed at the Bureau of Standards and used there in connection with braking tests. The principle on which this method is based is that if the car is suspended so that it is inclined downwardly (as on a down grade), weight will be transferred from the rear to the front axle in proportion to the height of the center of gravity.

Referring to Fig. 3, let H be the height of the center of gravity above the road surface; L , the length of wheelbase; W , the total weight of the car; f , the amount of weight transferred from the rear to the front axle as a result of the tilting; a , the angle through which the car is tilted; R , radius of wheels. Then, taking moments about point A , directly underneath the center of gravity and at the height of the wheel axes,

$$W l = f A B \cos a + f A C \cos a \\ = f (A B + A C) \cos a = f L \cos a$$

$$l = h \sin a$$

$$W h \sin a = f L \cos a$$

$$h = (f L \cos a) / (W \sin a)$$

$$h + R = H = \text{height of center of gravity}$$

$$H = (f L \cos a) / (W \sin a) + R$$

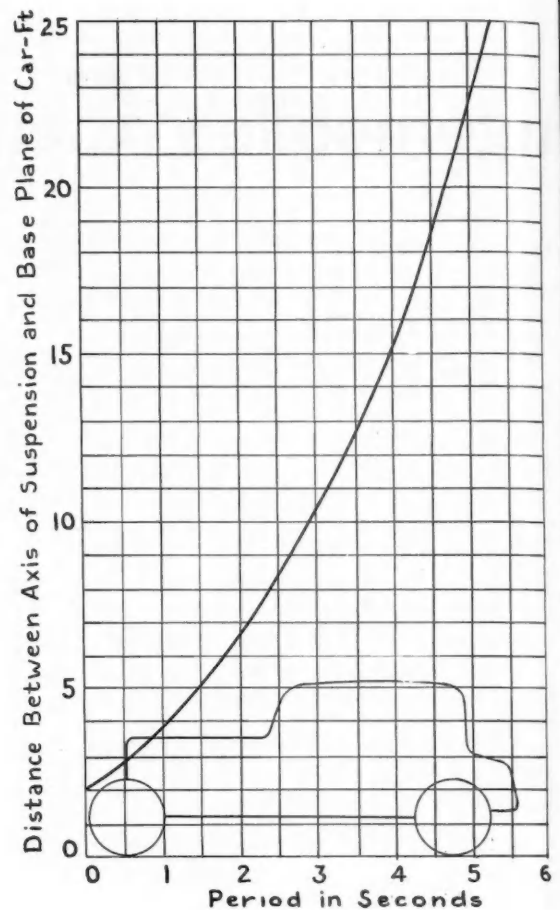
The amount of weight transferred from the rear to the front axle is, of course, the difference in the reading of the scale in the cable supporting the front end when the car is suspended in the horizontal and in the tilted position, respectively.

A further method for determining the height of the center of gravity, one which has been used abroad in connection with studies of spring suspension, makes use of the law of the pendulum. The time of the complete period of swing of a simple pendulum is

$$T = 2\pi \sqrt{l/g} \text{ seconds}$$

where l is the length of the pendulum in feet and g the constant of gravity (32.16 ft. p. s. s.). The

Fig. 4 — Noting decrease in period of swing as distance between axis of suspension and plane of support is changed



car, therefore, is suspended by cables or chains, from a crane, for instance, and is swung to determine the period of swing. At the same time the distance from the axis of suspension to the base plane of the car is measured. The distance between the base plane and the axis of suspension is increased (or decreased) in steps, and for each position the period of swing is determined. This period of swing is a function of the length of the equivalent simple pendulum. The length of the equivalent simple pendulum is somewhat greater than the distance between the axis of suspension and the center of gravity of the car; however, as the axis of suspension is brought closer to the center of gravity of the car the difference between the length of the equivalent simple pendulum and the distance between axis of suspension and center of gravity decreases, and the length of the equivalent simple pendulum becomes zero when the axis of suspension passes through the center of gravity.

After having determined the period for a number of distances between the base plane of the car and the axis of oscillation, we draw a co-

ordinate diagram in which the distances are drawn in an abscissas and the times as ordinates. (Fig. 4). By now drawing a curve through the points thus obtained and continuing it until it intersects the base line, we find the height of the center of gravity directly. One thing that helps in this connection is that the curve is substantially a parabola.

However, since it is impossible to suspend the car close to its center of gravity, the curve has to be extrapolated a considerable distance, and this is conducive to inaccuracy. Undoubtedly the most accurate way to determine the height of the center of gravity from the observation data is to assume the curve to be a perfect parabola corresponding to the equation

$$t^2 = c(d-a),$$

where c is a constant; d , the distance between the axis of suspension and the base plane of the car, and a the height of the center of gravity. By inserting the values for each observation, a number of observation equations is obtained from which the most probable value of a can be determined by means of the method of least squares.

JUST AMONG OURSELVES

Right from the Shoulder

FOR clarity, courage and straightforwardness, General Hugh S. Johnson's speech before the American Federation of Labor last week has rarely been surpassed. Forceful, coherent and plain, for all who read it carefully it removes most remaining ambiguities regarding the purpose, intent and content of NRA.

Some will be upset to learn finally that NRA definitely does mean "organization, cooperation and governmental participation" in a permanent as well as an immediate sense. It will be disturbing to others to have their last doubts dissipated as regards General Johnson's personal opinion of the most desirable type of organization for labor. He said:

"So far as I am concerned I believe in a vertical organization of labor in each industry on a national scale with representation of government in each organization to the full extent that we are putting government representation in industry."

These same people will be cheered, however, by his frank addition:

"But my opinions don't count. . . . It is simply not true that the recovery act imposes on labor any particular form of organization or any particular representation. It is labor's right to select

its own organization and its own representation."

All of which bears out what seems to us to have been evident from a reading of the labor provisions in the very beginning of NRA. Throughout the whole period since NRA came into being, interested parties on both sides of the fence have been hopping against hope that perhaps the law didn't mean exactly what it said; that some interpretation or other might make it mean what they wanted it to mean—and in the meantime have too often spoken as though their hopes were actually facts.

* * *

Clear and to the Point

CLOSE study of the Johnson speech furnishes material for endless editorial comment. Taken as a whole the speech should clarify almost every moot point in connection with NRA. It is too much to hope that complete clarification will result, however. Particular paragraphs or sentences of the speech can be isolated from their context and made to mean something quite different from their obvious import when spoken by the Administrator. Some commentators are almost certain to do just that thing. The speech is a unit and, to our mind, must be read as such.

On a Straight Line Toward the Objective

ONE industrial executive made a comment about the NRA activity in general and the Johnson speech in particular which we thought particularly penetrating. He said something like this:

"The big difference between the working of this and any other political group we have known in modern America, I think, is that this crowd has a clear and avowed objective toward which they are moving. All arguments, evidence and suggestions are weighed in their relation to their place in the achievement of that objective and decisions made accordingly. The source of the material doesn't seem to matter. Inevitably many toes are stepped on both in the ranks of employers and in the ranks of labor; but only when those toes get into the path.

"We are so used to public men being on this *side* or that *side* of every question, that we find ourselves puzzled by this group which seems merely to be moving along a predetermined line. Political activity which doesn't take sides leaves both sides a little mystified; we keep on trying to find out which side they are on."

The "ten-percenters" among labor undoubtedly feel that NRA is on the side of the employers; the "ten-percenters" among employers feel that it is definitely on the side of labor. Most of us, it would appear, are gradually getting to the encouraging belief that actually it isn't on anybody's side!—N.G.S.

Crossley Reveals Rear Engine Str

Designed in collaboration with Burney, car has overall length of 186 in.—Tread is 56 in. front and 43 in. rear—Engine 122 cu. in.

A PASSENGER car of streamlined design, with rear-mounted powerplant and all wheels independently sprung, will be exhibited at the coming Olympia automobile show by Crossley Motors, Ltd., the well-known British car-manufacturing firm. The design has been worked out by collaboration of Sir Dennistoun Burney and his engineers with the engineering staff at Crossley's, and many of the features due to Burney are worked into it, though as regards appearance this new design is less of a departure from the conventional than the original Burney car. For the following details of the design and the illustrations we are indebted to *The Motor* of London.

It is obvious from the side view of the car reproduced herewith that one of the aims of the engineers has been to arrange both seats substantially symmetrically with respect to the front and rear wheels, well inside the wheel axes, so as to assure optimum riding qualities. One objection that has been raised against rear-mounting of the powerplant and a streamlined housing for same is that it leads to excessive length. This Crossley car, however, has a wheelbase of only 116 in. and the overall length is slightly less than 186 in. To aid with the streamlining, the rear tread is made considerably narrower than the front tread, the latter being the standard 56 in. and the former 43 in.

The frame is of conventional design, having a high kick-up at the rear and a slight kick-up in front.

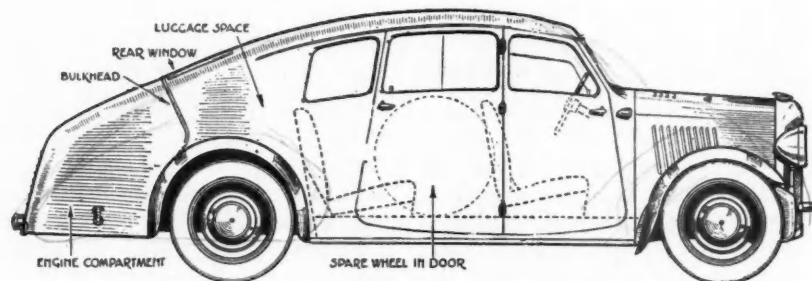
At the seats, the top of the frame rail is only 14 in. from the ground, and the floor is unobstructed, on account of the rear location of the engine.

The engine is a six-cylinder design of 65 mm. bore and 100 mm. stroke (2.55 by 3.94 in.) and has a displacement of 121 cu. in. Engine, clutch, transmission and final drive are combined in a single unit. The engine is back of the rear-wheel axis, while the transmission is forward. A large housing contains the flywheel, clutch and transmission. Power is transmitted from the center of the flywheel by means of a cushioned driving member connected to the stem-wheel of the four-speed pre-selective transmission, at the rear

end of which a double helical gear-set is enclosed.

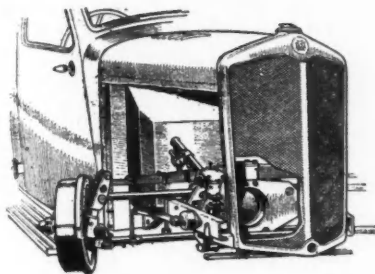
Of these gears, the pinion is mounted on the mainshaft of the transmission and the driven wheel is mounted directly below it. The shaft of the latter gear is continued rearwards, toward the engine, to a hypoid pinion meshing with a crown wheel on the differential. Transmission, therefore, is always through two pair of gears, one herringbone, the other hypoid. The whole assembly is mounted in bearings whose axis is transverse to the chassis, and rear-wheel driving shafts connect through Mechanics universal joints to the wheel hubs.

There are no rear axle tubes, nor is there a rear-axle beam. On the contrary, there is an inner, sta-



Seating arrangements are such that all passengers are seated well within the wheelbase

Streamlined Car at London Show



The steering heads are carried by a transverse spring and radius rods

tionary hub at each end which is supported by a conventional half-elliptic spring and is held in position lengthwise by means of a radius rod pivoted to it and to the frame. A ball bearing at the inner end of the inner hub gives endwise location, while a roller race outside the inner hub takes the journal loads. The whole assembly can be quickly dismantled by removing six nuts from the differential casing, after which the wheel assembly can be drawn off, the axle shaft coming with it.

Front springing is by a single transverse semi-elliptic spring which bears on a roller, as shown in the sketch. The steering head is connected to the chassis frame by two rigid links, the upper one of which is shorter than the lower one, which has the effect of keeping the tread substantially constant regardless of spring action. This is claimed to permit of the use of a single tie rod. There is a slight variation in the distance between pivot-pin axes, which results in a change in the amount of toe-in, but this is said to be negligible. Connection from the steering gear to one of the steering knuckles is by a transverse drag link. In addition to the two links supporting the steering head, there are other links extending obliquely

to the frame and which take care of brake-torque reactions. Bendix two-shoe, self-energizing brakes are fitted.

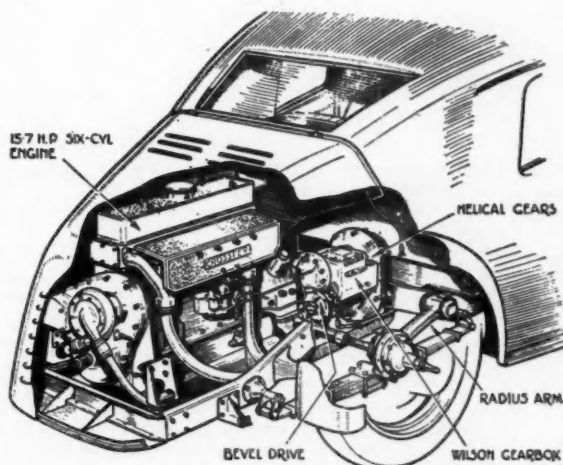
There is nothing unusual in the engine, which is, in fact, identical with a 122 cu. in. engine which has been used by Crossley for some time, except for the connection to the transmission unit. Mounting on the frame is by means of a plate type engine bearer clamped between the crankcase and the timing-gear housing, to the ends of which are secured pressed-steel pieces forming engine supporting feet which rest on brackets on the frame side rails, with rubber insulation in between. A two-bolt mounting is used for each pad, so that while being flexible, the unit is reasonably well located.

The body is of composite construction, with aluminum panels on an ash frame. By providing a bonnet at the front it has been sought to minimize the departure from the conventional in appearance. The overhang of the bonnet at the rear is moderate and the bonnet is hinged to swing upward to give access to the engine. Some

difficulty naturally was experienced in carrying all of the controls to the rear instead of to the front, but the problem is said to have been solved in a neat way. The radiator is located in its usual position at the front of the bonnet, and in order to assure adequate air circulation without a fan, an extractor effect is provided for by arranging outlets by means of valances in the mudguarding arrangement. The outlets are covered by wire gauze.

The spare wheel is neatly housed in the left-hand door. A separately hinged panel, which is normally locked in position, gives access to the tire compartment. The circular recess on this door is matched by a similar recess on the right-hand door, but the compartment thus formed in this door is shelved to afford a large compartment for parcels. Baggage can be carried also in the space between the rear seat and the engine compartment, in which considerable can be stowed away without obstructing the driver's view through the rear window. The car with sedan body sells at £750 or about \$3,400 at the current rate of exchange.

The engine mounting and special drive to the rear wheels



Who Killed the Goose That Laid the

A discussion of what the Census of Manufactures reveals about the distribution of the rewards of industry

GIVE the same set of statistics to persons of divergent viewpoints and sometimes the variety of their conclusions is amazing. Take the information on the split-up of the manufacturer's sales dollar provided by the U. S. Census of Manufactures. It has been used by many different people to prove many different things. Just the other day, for example,

Senator Robert Wagner of New York, head of the National Labor Board and one of the co-authors of the Recovery Act, used these data to make a point in a speech before the annual convention of the American Federation of Labor. He said:

"In 1929, the value of goods produced in factories in the United States was 10 billion dollars more than in 1923. Of this increase, 6

per cent went into wages, 8 per cent into salaries, 38 per cent into raw materials and 48 per cent into profit and other costs."

The other costs referred to are, of course, depreciation, interest, taxes, insurance, etc., which make a sizable dent in what any manufacturer has left after meeting payroll and material costs. In fact, during the last three years, manufacturers have found it increasingly difficult, and for many of them it has been impossible, to salvage enough out of gross income after deducting direct costs to cover these overhead items.

Presenting the census data as Senator Wagner did, does make it look as though the nation's manufacturers had been guilty of gluttony, although incidentally it would appear in fairness that the material suppliers should get 8 spanks for every 10 inflicted on manufacturers for their unsocial conduct, since the suppliers' increase was roughly 80 per cent of industry's. On the other hand, if the same basic data are presented more completely and in a different form, quite different conclusions may be drawn.

In the accompanying table, a recapitulation of the Census of Manufactures back to 1899 is given, while the chart which is also presented, shows the percentage split-up of the manufacturing sales dollar for each census year among workers, suppliers and gross profit, the term "gross profit" being used

The Split-Up of the Manufacturing Sales Dollar
(U. S. Census of Manufactures)

	Billions of Dollars Value of Products	Wages and Salaries	Cost of Material	Gross Profit*
1931†	41.3	10.3	21.4	9.6
1929	70.4	15.2	38.5	16.7
1927	62.7	14.1	35.1	13.5
1925	62.7	13.7	35.9	13.1
1923	60.6	13.8	34.7	12.1
1921	43.7	10.8	25.3	7.6
1919	62.0	13.3	37.2	11.5
1914	24.0	5.3	14.3	4.4
1909	20.4	4.4	12.1	3.9
1904	14.6	3.2	8.4	3.0
1899	11.4	2.4	6.6	2.4
Total	473.8	106.5	269.5	97.8

*By difference. Represents balance available to manufacturers for dividends, surplus including reserves, depreciation, interest, insurance, taxes, etc.

†Partly estimated by the Econostat.

by Don Blanchard,
Editor, Automotive Industries

Golden Eggs?

here inaccurately for the sake of brevity to describe what was left of the sales dollar after payrolls and materials. The dotted lines extending all across the chart show the average division of manufacturing income obtained by grouping the data for the 11 census years.

An interesting feature of this chart is the small variation in the split-up of the sales dollar in the different years. In 1931, when labor got its largest share, the variation was only 11 per cent from the average while in 1899, when the payroll share was smallest, the variation from the average was but 6 per cent. The variation in the material suppliers' split from the average ranged from 5 per cent above in 1919 down to 9 per cent below in 1931. What was left varied from 16 per cent above the average in 1929 to 15 per cent less in 1921, being the least stable of the three elements.

In view of the small variations in the division of the manufacturing sales dollar and of the probable errors to which statistics of this kind are heir, too precise conclusions may reasonably be questioned. Certainly, insofar as it is based on these data, the conclusion that industry was mainly responsible for the depression because it did not give labor a proper share of the rewards thus causing mass purchasing power to lag behind mass production, can not be considered as proven.

Moreover, so far as the effect of the split-up on national income is concerned, it must not be overlooked that while gross profit—what was left after wage of material costs—does not represent purchasing power for factory employees, it does represent purchasing power for other elements in our population. Depreciation is purchasing power previously re-

leased through the construction and factory equipment industries. Insurance gives purchasing power to insurance company workers and to those who benefit by loss and damage claims. Similarly taxes provide purchasing power for government's employees and suppliers and their employees.

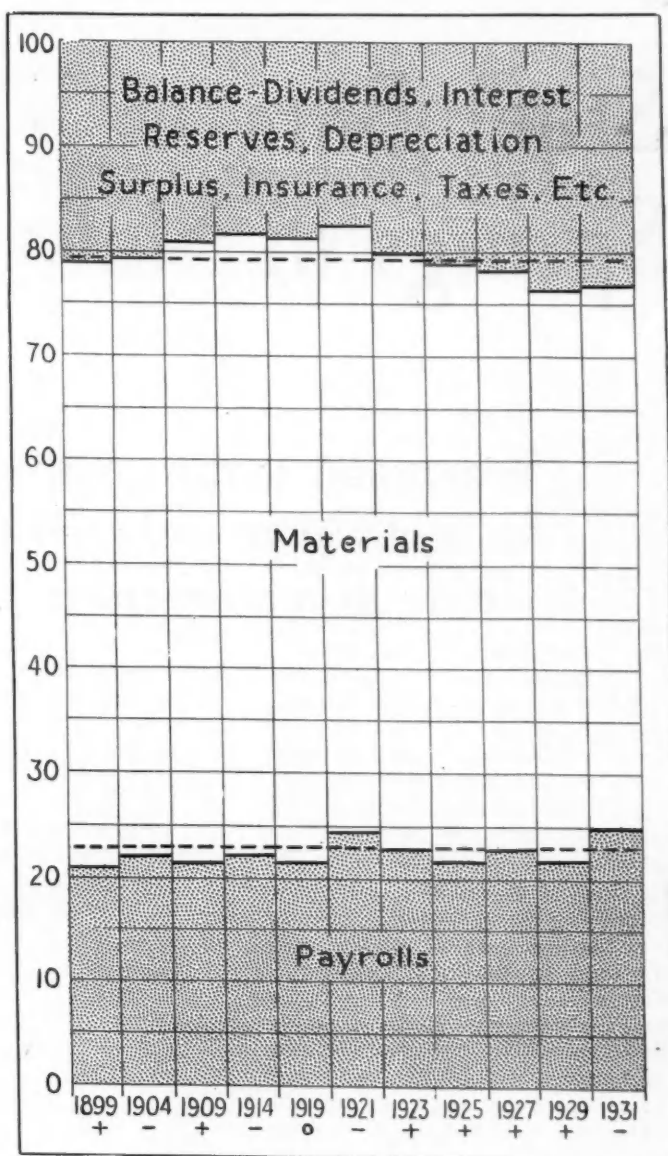
Interest and dividends give purchasing power to security holders. While probably only a small portion of the population benefit directly thereby, indirectly a most substantial share of the people have a stake in these payments on invested capital through their equities in the security holdings of banks and insurance companies.

The balance after these items, if any, represents the transfer to sur-

plus to meet contingencies. The necessity for reserves to meet the hazards of business has not been generally questioned. But it has been argued that during the "new era" period, excessive profits inflated surpluses to the extent that the money was used in unwise plant expansion and that it would have been better if the excess earnings had been distributed in payrolls.

No one can defend unwise plant expansion. It represents waste for which society has to pay. But, in connection with the "lagging purchasing" power theory, it is pertinent to point out incidentally that such expansion represented the distribution of purchasing power through the construction and fac-

(Turn to page 487, please)



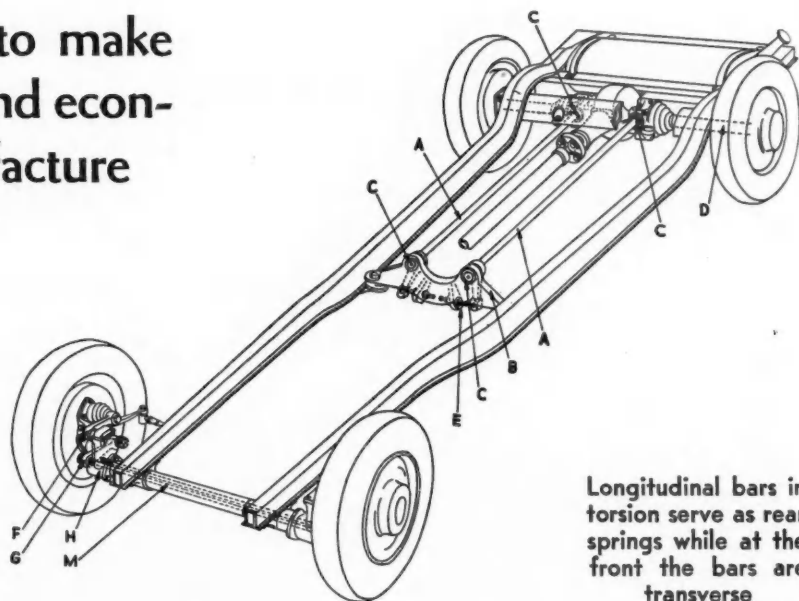
Steel Bars in Torsion Used as Springs in New Mathis Models

Suspension said to make for light weight and economy in manufacture

IN place of the usual leaf springs, torsion springs consisting of cylindrical bars of spring steel are used in the new Quadriflex Mathis four and six cylinder models shown for the first time at the Paris Show.

Since each spring is in the form of a single cylindrical bar and since substantially twice as much energy can be stored in spring steel under torsion as in spring steel subjected to bending stresses, with the same factor of safety, the new suspension should make for lightness and economy of manufacture, besides offering the usual advantages of independent springing, viz., smoother riding due to reduction of unsprung weight, and relative freedom from front-end stability.

Referring to the accompanying illustration, it will be seen that the steering heads are mounted on two short parallel levers F and G. Lever G is secured to the end of a spring-steel bar M extending through the tubular front cross member of the frame, in which its opposite end is anchored. Any shock to the front wheel due to road obstructions puts bar M under torsion, and the elasticity of this bar takes care of the "suspension." Elastic motion of the spring is damped by an hydraulic damper or shock absorber which is enclosed in housing H, this damper being actuated by lever F.



Longitudinal bars in torsion serve as rear springs while at the front the bars are transverse

Rear suspension is by two cylindrical bars, A,A, whose front end is anchored in the frame cross member B by means of splines C. At the rear end the bars A,A are connected by splined joints C to forks on the axle housings D which are rigid with hollow spindles on which the wheels turn. When one of the wheels hits an obstacle it rises and twists the torsion bar A, and the torsional strain thus set up returns the wheel to its normal position after the obstacle has been passed. An adjusting means E is provided to vary the torsion of the bar in accordance with the load carried.

It is claimed by the manufacturer that the springing system here described, for reasons inherent in its design, requires absolutely no service operations. Spring shackles, spring clips, shackle bolts, lubricators, all parts subject to wear, which produce noise and are expensive to maintain, have been elim-

inated. The maximum stress in the torsion bars A is lower than that in the conventional spring plates.

The illustration of the rear end is not as clear as it might be, but it seems that the final-drive housing is rigidly mounted on the chassis frame and that the axle housings are articulated to the final drive housing concentric with the torsion bars A,A.

Differentials in 1865

IN an article in *Engineering* on The Development of the Traction Engine it is stated that Clayton & Shuttleworth fitted their steam gears traction engines with differential gears or compensating from 1865 on. With other makes of such engines which did not have this device it was necessary to take the driving pin out of one of the road wheels to get around anything but the most gradual of turnings.

New Machine for Oil Testing Shows Effects of Load, Speed and Temperature

FOR the purpose of carrying out tests that will give more comprehensive information regarding the qualities of lubricants than machines available in the past, a new oil-testing machine has been evolved in Germany and is illustrated by the accompanying photograph and diagram. Tests can be carried out on this machine under the following working conditions, the frictional-force being automatically recorded in every case:

1. Under specific loads of from 5 to 100 kg./sq. cm. and over (71 to 1420 lb. per sq. in. and over).

2. At rubbing velocities of a few meters to a few hundred meters per minute.

3. At temperatures of from 15 to 200 deg. C. (— 6 to + 392 deg. F.), by gradually heating and then allowing to cool again.

Thus the effect of each of the three factors—specific load, rubbing velocity, and temperature—on the bearing friction is determined independently. Wear of the test piece as a result of the sliding friction is also determined and automatically recorded, independent of the heat generated. It is thus possible to compare the merits of different bearing metals when lubricated with the same oil, and vice versa. The general features of the new machine are briefly as follows:

A drum of hardened steel is mounted on the main shaft, and heat can be applied to the inside of the drum to vary its temperature between the limits of 15 and 200 deg. C. A test piece (bearing block) can be applied to the outside of the drum with a pressure which can be varied and measured. The temperature of the test piece is measured very close to the bearing surface. Friction between the revolving drum and the test piece reacts on the frame of the machine, pivotally supported concentric with the main shaft, and moves it out of the position of rest. The deviation from the position of rest changes with the direction of motion; it is indicated by a pointer actuated by the frame, the pointer moving over a scale

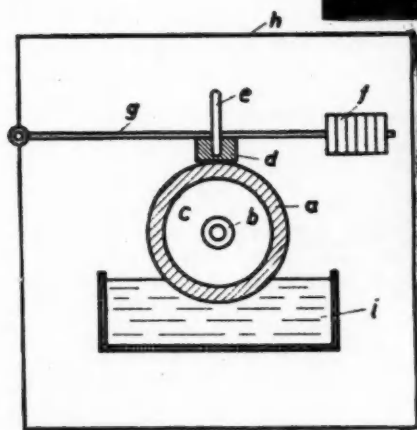
from which the friction can be read off directly. By comparing the readings for forward and backward motion under otherwise similar conditions, a check is obtained on the adjustment of the machine.

When making tests under conditions of high specific pressure, the drum is submerged in oil to a depth of about $\frac{3}{8}$ in. The oil film which then forms on the outside of the drum must not be broken down, as that would result in direct metallic contact, excessive friction, and rapid wear. Tests are then made to whatever limiting temperature, specific load and rubbing velocity the oil film remains intact. Consumption of oil under the various conditions can also be determined with this machine, being expressed

in terms of the total number of revolutions for a given quantity.

When working at low specific pressures a flexible band is applied to the revolving drum, in place of the rigid test piece. The drum in that case does not run in an oil bath but has oil supplied to it drop by drop, the excess oil collecting at the bottom of the oil reservoir. Contact between the drum and the test piece is between the cylindrical drum surface and either a flat test piece or a flexible band, so that seizing of the bearing is entirely impossible. The pressure on the surface of contact always passes through the axis of the drum, hence no moment can be set up except that due to friction between drum and test piece, and the results obtained are character-

Fig. 1—Front view of M-A-N oil-testing machine



a, drum; b, axis of drum and frame; c, heating chamber for temperature control of the drum; d, test piece; e, thermometer; f, weights which furnish the load on the rubbing surface; g, lever; h, frame; i, oil sump; k, friction between drum and test piece.

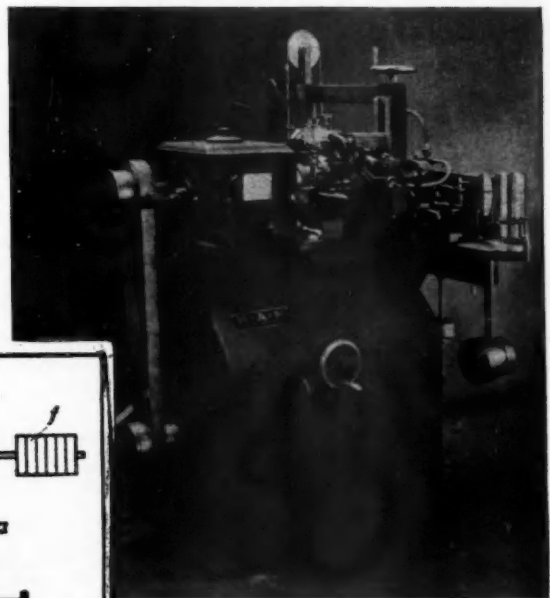


Fig. 2—Diagram illustrating the working principle of the machine

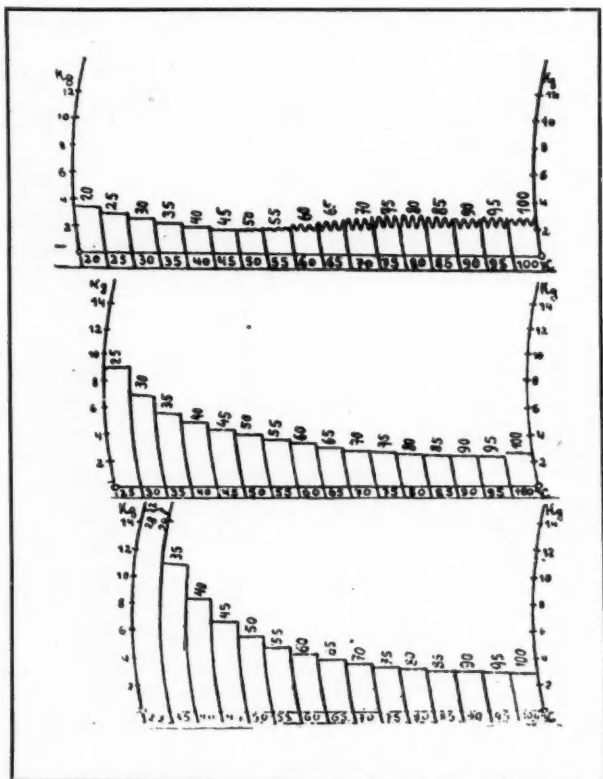


Fig. 3—Friction diagrams obtained under conditions described in the text

istic of the qualities of the lubricant exclusively.

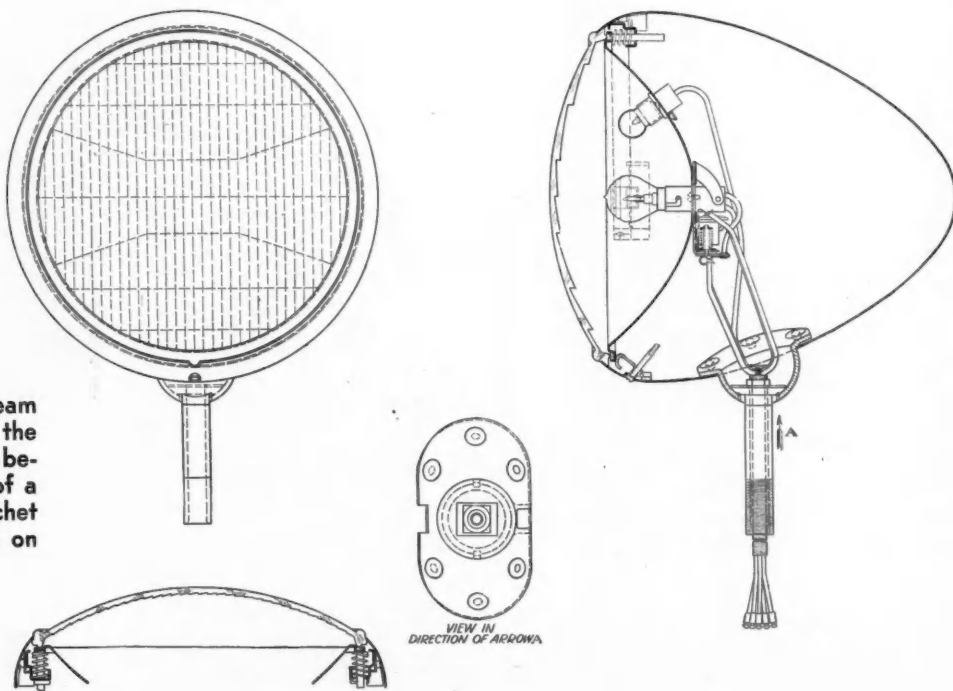
An advantage of this type of machine is that the rubbing velocity is constant over the whole area of contact, which is not the case when contact is between two discs.

Fig. 3 is a sample of the autographic diagrams obtained from this machine. Ordinates represent friction force in kilograms and abscissas temperatures in deg. C. The specific load on the bearing was constant throughout this test, amounting to 8 lb. per sq. in. The upper diagram corresponds to a rubbing velocity of 39.4 ft. p. m.; the intermediate one to 214 ft. p. m., and the lower one to 440 ft. p. m. It will be seen that with this particular oil the friction is practically independent of the bearing temperature when the speed is low. At higher speeds the friction is far greater when the temperature of the bearing is low.

The machine described is being manufactured by the Maschinenfabrik Augsburg-Nuernberg, A. G.

The Studebaker Magnetic Control for Vertical Adjustment of Headlamp Beam

The angle of the headlamp beam can be changed from above the horizontal to several degrees below through the intermediary of a magnetically actuated ratchet controlled by a toggle button on the dash



Factories Will Deal Individually with Striking Tool and Die Union

(Continued from page 473)

much as the formula calls for negotiations with automobile manufacturers first and jobbing plant operators next, it is considered that the automobile makers and the die and tool manufacturers have won their point.

Mr. Smith said that the "big companies," meaning automobile manufacturers, had declined but that the jobbers and independent tool makers had agreed to deal with the Mechanics' Educational Society of America, to which Mr. Smith belongs. It was not made clear whether the formula calls for dealing with the Mechanics' Educational Society or not, but if so, it will be done by each individual plant. Jobbers and independent tool makers, he insisted, were prepared to grant demands of strikers as to wages and hours but strikers, he said, would not return to work because they were afraid the automobile makers would turn their tool and die work over to jobbing plants and close their own departments.

The case was the second one having to do with the automotive industry that the board dealt with during the day. It was successful in arranging for a meeting between strikers at the Edgewater, N. J., and Chester, Pa., Ford assembly plants, but nevertheless this was arranged only after Ford representatives made it clear they would deal directly with their employees and would not submit the situation to arbitration by the Labor Board. Senator Wagner nevertheless held a Labor Board representative in readiness in case he was called upon to aid in settling the strike and insisted that excellent progress had been made toward settlement. He did not construe the experiences with the automobile manufacturers as a challenge to the authority of the board, or disregard for its offices.

The board has had like experience previously, first, when Western Kentucky coal operators did not accept his summons to appear before the board. Later the coal operators indicated there had been a "misunderstanding" but it is still doubtful that they will appear before the National Labor Board. Rather it appears more probable they will arrange differences with miners through the Bituminous Coal Labor Board established under the bituminous coal code. If there is growing resistance to the National Labor Board the latter is not conceding that this is so.

Nevertheless, the National Labor

Board is said to be growing restive over the attitude of employers and has implied it will, if necessary, apply punitive powers. Senator Wagner has indicated as much orally from time to time, though plainly is reluctant to do so unless the board feels that its hands are forced. Senator Wagner reflects the views of other members of the board in his assertions that it is the desire of the board to bring industrial strife to an end through peaceful methods and to hasten restoration of normal economic conditions in the United States.

In his radio address Wednesday, however, the Senator served notice that the Labor Board has power and that if its decisions are flouted by any group it may be placed under a code embodying the conditions approved by the board and subjected to the licensing provisions of the Recovery Act. The Senator, who urged cooperation between industry and labor, and said the strike should be abandoned as an instrument of first resort, also warned labor in comparing the rights and duties of industry and labor when he said the conduct of labor, like the conduct of business, is the concern of the public.

"The question frequently is raised whether the National Labor Board has power of compulsion over those who are reluctant to appear before it or to abide by its decisions," said the Senator in his broadcast. "I do not like to answer this question because when you talk about compelling a man to do something you make him forget that it is to his best interest to do it voluntarily. Compulsion is necessary only when there is opposition, and there should be no opposition to a board which has demonstrated its willingness and ability to assist every group. It is an essential part of the recovery program and is working hand in hand with the Recovery Administration. Any group which flouts the decisions of the board may be placed under a code embodying the conditions approved by the board. If the code is violated, the licensing provision and the other penalties of the Recovery Act may be invoked. There will be no escape for the misguided minority who arise to interfere with every constructive program.

"I want to add one more remark in rounding out my comparison of the rights and duties of industry and labor under the Recovery Act. I have said that the conduct of business is

now a matter of public interest. The same is true of the conduct of labor. The national concern about the success of the recovery program rises above the narrow interest of any particular group. The public is placing implicit reliance upon the level-headedness and patriotism which industry and labor have shown in the past. I am sure that they will both respond to that confidence and carry the program to triumphant heights."

The warning of punitive action for those flouting the board's decision was interpreted by many as further concern by the NRA over violations of codes. For it came immediately upon the stern executive order of President Roosevelt in which he prescribed a \$500 fine and six months' imprisonment for violators of the President's Reemployment Agreement and for those displaying the Blue Eagle after its surrender had been demanded by the NRA.

The Wagner suggestion as to the duties of labor also gave strength to reports that there is under consideration the establishing of a labor code in which organized labor would agree not to coerce or intimidate unorganized workers. It is said that the growth of "racketeering" among labor groups, done without the sanction of officials of organized labor, has excited a great deal of apprehension and that labor, precisely as industry, must be compelled to subject itself to penalties under a code for its violation.

There was nothing of this character mentioned or even intimated, however, at the hearing in connection with tool and die strike situation, though reports are common that organized labor groups have forced workers into the union against their wishes.

Presiding at the morning session was Senator Wagner. The afternoon session was presided over by Gerard Swope, a member of the board. Other members are George Berry of the pressmen's union, and Father Haas.

The committee of strikers in addition to Mr. Smith who attended the hearing were Harry Spencer, Pontiac, Mich.; Harry Harrison, Detroit; Frank McCracken, Detroit, and Maurice Sugar, Detroit, counsel for the committee.

In addition to Mr. Richards and Mr. Wise, others appearing for the employers were M. A. Woodworth, Detroit, president, Excello Tool & Die Co., and Chester Culver, secretary, Employers' Association of Detroit.

Brown-Lipe Has New Line of Helical Gear Transmissions

A COMPLETE line of helical gear transmissions for commercial vehicles and taxicabs has been introduced by the Brown-Lipe division of the Spicer Manufacturing Corporation. The line is available in three, four, five, and eight speeds forward types. The three speed variety is designed for taxicab use. It has a quiet counter-shaft and second speed drive.

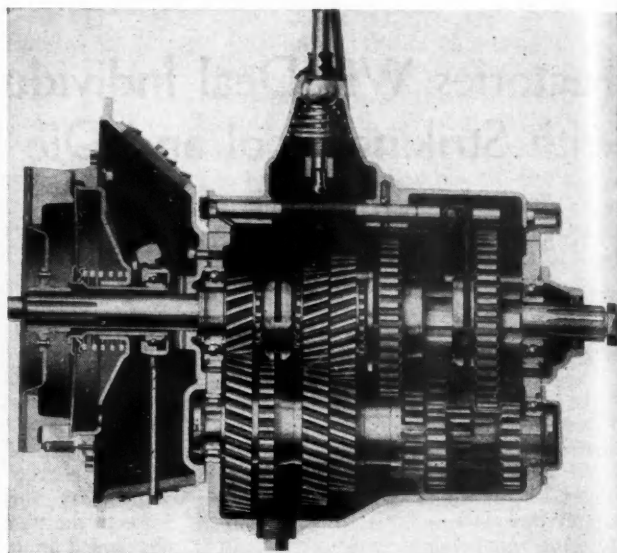
Truck transmissions are available in either four, five, or eight speed types. The four speed has two sets of helical gears also, for counter-shaft drive and quiet third. Three sets of helical gears are found in the five speed transmission, while the eight speed type has eight sets of helical gears.

For bus work either three or four speed transmissions are available. The three speed type in this case has helicals for all gears with the exception of reverse.

Other features of the new transmissions include a more rigid and compact single case construction, especially on the five speed type, simplifying installation; large shaft diameters; direct drive on either fourth or fifth in the five speed type, and overdrives also available in the eight speed; lower gear tooth and bearing loads (helical gear thrust taken on ball bearings).

Power take off can be installed on either side of the truck transmissions. In addition to the lines of

The five-speed transmission of the new line



Gear Ratios Available

	Model 2252 (Dir. on 5th)	Model 2253 (Dir. on 4th)	Model 2352 (Dir. on 5th)	Model 2353 (Dir. on 4th)	Model 3352 (Dir. on 5th)	Model 3353 (Dir. on 4th)
Low Rev.	7.32 to 1.00	5.23 to 1.00	7.70 to 1.00	6.12 to 1.00	7.71 to 1.00	6.13 to 1.00
High Rev.	(Optional)	(Optional)	4.40 to 1.00	3.50 to 1.00	4.48 to 1.00	3.56 to 1.00
First	7.32 to 1.00	5.23 to 1.00	7.70 to 1.00	6.12 to 1.00	7.71 to 1.00	6.13 to 1.00
Second	4.25 to 1.00	3.60 to 1.00	4.55 to 1.00	3.62 to 1.00	4.55 to 1.00	3.62 to 1.00
Third	2.21 to 1.00	1.83 to 1.00	2.35 to 1.00	1.87 to 1.00	2.35 to 1.00	1.87 to 1.00
Fourth	1.40 to 1.00	1.00 to 1.00	1.45 to 1.00	1.00 to 1.00	1.45 to 1.00	1.00 to 1.00
Fifth	1.00 to 1.00	.78 to 1.00	1.00 to 1.00	.79 to 1.00	1.00 to 1.00	.79 to 1.00

single plate, double plate, and multiple disc Brown-Lipe clutches available with these units, Powerflo automatic centrifugal clutches are also offered.

A novel method of lubricating the clutch throwout bearing is provided. A tube extends from this bearing down through a hand-hole cover in the clutch housing. This cover has a rubber insert with a slot permitting the tube to move forward and back with the throwout bearing.

ing woolen streamers attached to them. Tests of Oleo landing struts with pneumatic tires were also shown, and the movements of a model airplane in the vertical spinning tunnel at Farnborough were illustrated in an interesting manner. The effect of fairing the part of an airplane where the wing meets the fuselage was shown by the behavior of tufts of wool, and, finally, the taking off of a large, three-engine flying boat was shown.

Sir Henry Fowler said that some five years ago the recently formed Overseas Transport Directory Committee decided to build experimental 15-ton units capable of traversing difficult country, and a film was reeled off which showed one of these units in action. It consisted of an eight-wheeled tractor and two eight-wheeled trailers, all wheels being fitted with large pneumatic tires. The trailer wheels were steered and the train could be driven from either end. The wheels were all independently articulated and were fitted with Westinghouse air brakes. The braking arrangements were such that the trailers were braked before the tractor, thus preventing the former from over-running the latter. A speed of 20 m.p.h. could be obtained, and a grade of 40 per cent negotiated.

Slow Motion Pictures Help British Production Men

AT the recent meeting of the British Association for the Advancement of Science, one session of the Engineering Section (Section G) was devoted to examples of the application of the moving-picture camera in industry. In an introductory address W. H. Wimperis said cinematography could be used in industry in three different ways. The simplest way was for recording the changing indications of different instruments,

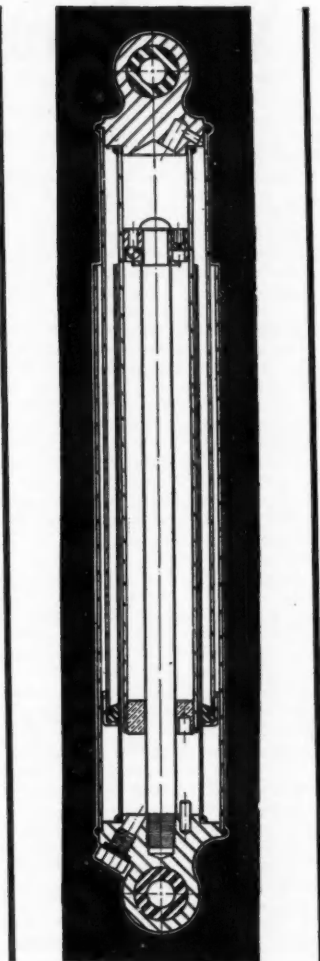
and another use lay in the ability of the cinema camera to record the position or altitude of some moving body. The third method consisted in making slow-motion pictures of some rapid movement so that it could be easily followed by the eye. Mr. Wimperis then showed a series of short films to illustrate some of the methods used in aeronautical research. The film showed the action of the Handley Page wing slots by models in the wind tunnel hav-

Monroe Direct-Action Shock Absorber

A DIRECT-ACTING shock absorber has been announced by Monroe Auto Equipment Company. Under development since 1928, the unit is of the double-chamber type, the reservoir chamber surrounding the working chamber. Attachment of the unit to axle and frame is through rubber grommets set into the housing ends, the unit requiring no linkage or arms, of course.

From the accompanying illustration it will be noted that the working piston attaches to the upper cover forging. The piston incorporates the metering device, with a ball check valve for sealing on rebound strokes of one orifice through which oil flows from bottom to top of the piston on the compression stroke.

The metering orifice for the rebound stroke, it will be noted, is of the shallow type to reduce variations resulting from changes in oil viscosity. The lower end of the working chamber is connected with the outer chamber which is only partly full of oil, to permit "breathing" of oil required by the displacement of the piston rod in the working chamber. The latter is full of oil at all times. Makeup oil flows into the working chamber



Sectional view of Monroe direct, double-acting hydraulic shock absorber.

from the reservoir through this passage.

Leakage through the top gland of the working chamber returns automatically into the reservoir chamber which is maintained at approximately atmospheric pressure. As a result, external leakage from the shock absorber unit should be at a minimum. A rubber seal is used at the top of the reservoir chamber, well above the normal level of the oil.

Makeup oil for the entire unit is added through the filler plug at the top of the unit. From here it flows into the reservoir chamber in the same manner as leakage through the top gland of the working chamber. It is claimed that the units save from 10 to 15 pounds of weight as against conventional shock absorbers. The larger displacement of a direct-acting unit, of course, permits the use of larger metering orifices and probably therefore smoother action on high accelerations imparted to the unsprung masses, while shock absorber resistance will be materially reduced for smooth pavements and low vertical accelerations.

The units are available in a variety of sizes to fit cars of all weights and sizes.

Who Killed the Goose That Laid the Golden Egg?

(Continued from page 481)

tory equipment industries. But viewing the situation from the bottom of the depression, it is now easy to say that the effect on our economy would have been more salutary if this waste had been avoided and its money equivalent distributed directly in payrolls.

Grandstand quarterbacks can always direct the team more intelligently than the boy on the field who has to decide what the play shall be, not what it should have been. Industrialists do not consciously ex-

pand plants unwisely. The fact that they have, simply proves that human judgment is fallible. Perhaps now that it is legally possible for industrialists to cooperate on matters of this character, and with the assistance of the planning and coordinating agencies which the government is fostering, it will be possible to answer more precisely the difficult question of what plant expansion is justified from the standpoint of the individual's units in industry and of the consuming

public. Certainly this happy result is to be looked for.

All of which is not intended to prove that we are living in an economic or social Utopia, or to demonstrate that the distribution of the rewards of industry has been equitable. Rather the intention is to suggest that the explanation of our economic troubles may not be so simple as a casual comparison of statistics of production and payrolls might indicate.

The Employee Representation Plan for Which Chrysler Workers Voted 5 to 1

TWENTY-EIGHT thousand Chrysler employees out of 33,000 voting, approved the Chrysler employee representation plan, as reported in *Automotive Industries* last week. In view of the fact that many automotive manufacturers are studying the desirability of putting similar plans into effect, the complete text of the Chrysler plan is presented in the following;

Purpose

THIS is a plan which provides an opportunity for the Employees to have an equal voice with the Management in deciding jointly all matters affecting wages and working conditions.

Its purpose is two-fold:

First: To establish a mutually satisfactory way of settling any differences which may arise between Employees and Management, including rates of pay, shop rules, working conditions, safety, hours of labor, plant sanitation, Employees' transportation and recreation.

Second: To provide a means of friendly and lasting cooperation between Employees and Management on the basis of mutual confidence and understanding.

In order to carry out these aims, the plan provides:

(1) That the Employees may nominate and elect by secret ballot Employee Representatives to deal with the Management on all matters of wages and working conditions.

(2) That the Employee Representatives so nominated and elected may serve on a Joint Council with an equal number of Management Representatives, which Council shall hear and dispose of any questions referred to it by the Employees or the Management.

(3) That such a Joint Council be established in each of the following divisions: Plymouth, Dodge Main, Jefferson, Kermichael, Dodge Forge and Truck, Highland Park, Newcastle, Chrysler California and Chrysler Engineering.

(4) That in the event the Joint Council can not reach a satisfactory settlement itself, or in consultation with the Operating Vice-President, the matter shall be referred to arbitration for decision, which decision shall be binding on all concerned.

(5) That mutually satisfactory procedure be established for the prompt, regular handling of any matters arising between Employees and Management through joint determination of the facts and joint decision in which Employees and Management shall have an equal voice.

Nominations and Elections

1. For the purpose of nominating and electing Employee members of the Council, each of the divisions named above shall be divided into Voting Districts. Voting Districts shall be determined so as to include substantially an equal number of shop Employees, and with due regard to departmental classification of the plant.

2. Adjustments in Voting Districts, whenever necessary to secure complete and fair representation, shall be made in

accordance with the recommendations of the Joint Council.

3. Employee members of the Council shall be nominated and elected by the Employees by secret ballot.

4. All shop Employees of the Company who are on its payrolls on the day of nominations shall be entitled to vote at nominations and at elections.

5. Any shop Employee of the Company who has been on its payrolls for a period of at least one (1) year immediately prior to the day on which nominations are made (including time lost as a result of illness or lack of work), who is twenty-one years of age or over and who is an American Citizen, shall be qualified for nomination and election as an Employee Representative.

6. To be eligible for nomination as Employee Representative from any Voting District, the Employee must be employed in such Voting District.

7. Officials of the Company and persons having the right to employ or dismiss, or regularly holding purely supervisory positions, shall not be eligible for election as Employee Representatives or qualified to vote for Employee Representatives.

8. Nominations and elections shall be conducted in each division annually during the month of October.

9. Nominations shall be made on any day in October, and elections shall be held within four (4) days thereafter, and during the same week.

10. Nominations and elections shall be conducted by the Employees themselves in accordance with rules and regulations prescribed by the Joint Council, and with only such assistance from the Management as may be requested.

11. Nominations and elections shall be so conducted as to avoid interference with the voters in any manner whatsoever, and so as to prevent any fraud in the casting or counting of ballots.

12. On the day of nominations, each shop Employee of the Company then qualified to vote shall be furnished with a ballot stating the number of persons he is entitled to nominate, and such voter shall write on his ballot the names of the persons in his Voting District whom he desires to nominate for election as Employee Representatives.

13. Each Voting District shall be entitled to one Representative in the Council. Each shop Employee shall be entitled to nominate two qualified Employees as candidates for election as Representatives in the Council.

14. If any voter puts the name of the candidate on his ballot twice it shall be counted only once.

15. If any voter nominates more than two candidates his ballot shall be void.

16. After the Employees have nominated candidates, the nominating ballots shall be counted and the two Employees who have received the highest number of votes at the nominations shall be candidates for election.

17. On election day each duly qualified voter shall be furnished with a ballot containing the names of the candidates for Employee Representative in his Voting District.

18. Each voter shall indicate his preference by placing a cross (x) opposite the name of the candidate of his choice.

19. Each voter shall deposit his own ballot in a box provided for the purpose by the Joint Council and the ballots shall be counted under the direction and supervision of the members of Joint Council.

20. The candidate in each Voting District who shall receive the highest number of votes shall be declared elected as the Employee Representative for that District.

21. In the event of a tie, seniority in the employment of the Company shall determine the choice.

22. In the event of a controversy arising concerning any nomination or election, it shall be referred to and decided by the Joint Council.

23. The candidate running second in number of votes cast at election for Representative shall serve as Alternate to the elected candidate as Representative for the District.

Term of Office

1. Employee Representatives shall be elected for a term of one (1) year, and shall be eligible for reelection.

2. An Employee Representative shall be deemed to have vacated his office as such:

(a) Upon severance of his relations with the Company.

(b) Upon transferring from one Voting District to another.

(c) Upon his appointment to such a regular position as would make him ineligible to qualify as a voter or as an Employee Representative.

(d) Upon being absent for more than two consecutive meetings unless such absence has been excused by the Chairman of such meetings.

3. In case a petition is filed with the Chairman of the Joint Council, signed by not less than one-third of the Employees of a Voting District, asking for the recall of their Representative, a special election by secret ballot shall be held in that Voting District under the direction of the Joint Council, to decide whether such Representative shall be recalled or continued in office.

4. If at such election a majority of the Employees in the Voting District vote in favor of recalling their Representative, then his term of office shall immediately cease; otherwise, he shall continue in office.

5. Vacancies in the office of an Employee Representative for which there is no Alternate may be filled for the unexpired term, in the discretion of the Joint Council, by special election conducted in the same manner as the regular annual elections.

Joint Council

1. Those qualified candidates, elected as Employee Representatives in the various Voting Districts of each of the Plant Divisions outlined above, shall constitute the Employee members of a Joint Council for that Plant Division.

2. Within one (1) week after the annual election of Employee members of the Joint Council, the Management shall appoint representatives of the Management to meet with the elected Employee members. At no time shall the number of Management Representatives exceed the number of elected Employee Representatives in any Joint Council in any Plant Division.

3. The Company shall also appoint a Special Representative (who shall be known as Management's Special Representative) who shall keep in touch with both the Employee Representatives and the Management, and shall represent the Management in negotiation with such Representatives.

4. The Management's Special Representative shall act as Chairman of the Joint Council, but shall have no vote.

5. Within one week after the annual election the Employee Representatives and the Management Representatives, shall meet for the purpose of forming the Joint Council, and electing a Secretary, and such committees as may be deemed necessary or advisable.

6. A majority of Employee Representatives together with a majority of Management Representatives shall constitute a quorum at meetings of the Joint Council and its committees.

7. All votes in the Joint Council and its committees shall be by secret ballot. Employee Representatives and Management Representatives shall have equal voting power and two-thirds vote shall be necessary to decide any question.

8. To preserve the equal voice of Employees and Management at meetings of the Joint Council or its committees at which a quorum is present both Employee Representatives and Management Representatives shall be entitled to cast an equal number of votes.

9. The Joint Council shall hold regular

meetings on the first Tuesday afternoon of each month, unless such day shall be a legal holiday in which event the meeting shall be held on the next succeeding full business day. Special meetings may be called on three days' written notice by the chairman. Any three Employee Representatives may request the Chairman to call a special meeting on matters which should receive attention before the next regular meeting.

10. The Company shall provide at its expense suitable places for meetings of the Joint Council and its committees.

11. Employees serving as members of the Joint Council or its committees shall receive their regular average pay from the Company for the time actually spent in serving on such Council or committee.

Duties of Joint Council

1. The Joint Council may consider and make recommendations on all questions relating to working conditions, safety, wages, working hours, and other similar matters of mutual interest to the Employees and to the Management. It shall afford to the Employee and to the Management opportunity for the presentation and discussion of questions arising in connection with these subjects.

2. Any matter which in the opinion of any Employee of the Company requires adjustment, and which such Employee is unable to adjust with the foreman in charge of the work on which he is engaged, may be referred by the Employee to the

Employee Representative of his Voting District. The Employee Representative shall endeavor to reach a satisfactory settlement of the matter with the foreman. If they are unable to agree, they, in consultation with the Management's Special Representative, shall prepare a joint statement of the matter to be taken up with the foreman's superior officers. If the matter can not be satisfactorily settled in this way, it may, with the approval of the Employee concerned, be referred to the Joint Council.

3. The Joint Council may call any Employee before it to give information regarding the matter under consideration. The Joint Council or committee appointed by it for that purpose, may go in a body with Management's Special Representative to any part of the plant for the purpose of making investigations, after making arrangements for so doing with the Management's Special Representative.

4. After complete investigation and full discussion of any matter under consideration by the Joint Council, the Chairman shall call for a vote.

5. The Employees' Representatives and the Management Representatives shall have equal voting power and at least a two-thirds vote shall be necessary to reach a decision. In case a decision is not reached by the Joint Council at the second meeting following the meeting at which the case was first brought up the matter shall be referred to the Operating

(Turn to page 494, please)

As We Go to Press

Parts Industry code expected to go to President late this week or early next.

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K. J. Ammerman named deputy NRA administrator in charge of automotive division, succeeding R. W. Lea, who becomes assistant administrator.

* * * * *

Code of the Special Tool, Die and Machine Shop Institute set for hearing on Nov. 2.

* * * * *

Hupp reports net loss after charges of \$1,196,131 for first nine months against loss of \$3,405,190 in same period last year. Third quarter, 1933, loss was \$414,699.

* * * * *

Mullins Mfg. Corp. reports nine months loss after charges of \$156,594, exclusive of \$175,000 reserve against Overland account of \$139,524 for 1929 development expense charged to surplus. Loss in same period last year was \$5,653. Third quarter profit \$17,763.

* * * * *

Net profit after charges of \$432,598 reported by L. A. Young Spring & Wire Corp. against loss of \$77,855 last year. Third quarter profit, \$196,293.

* * * * *

N. Y. Stock Exchange breaks precedent in issuing warning that quoted price (2½ bid-3 asked) on Pierce-Arrow Class A stock was out of line with preferred quotations (17-19). Under recapitalization exchange plan one preferred = 3½ common = 35 Class A.

* * * * *

Federal Trade Commission issues complaint

against Goodyear charging tire contract with Sears-Roebuck represents price discrimination in violation of Clayton Act. Answer ordered for Oct. 20. Contract entered into in 1926 now extends to 1941. Goodyear president Litchfield says opportunity to air facts about controversial contract is welcomed, pointing out that such contracts are common in the tire business, three of the four largest makers producing special brand tires as well as many other companies.

* * * * *

F. K. Glynn, chairman of the S.A.E. general membership committee, announces new campaign for members. To stimulate competition, the society's sections have been divided into pairs, the members of each pair competing directly.

* * * * *

GM fleet sales in September were the largest for any month in three years. Nine months sales are the largest since organization of GM Fleet Sales Corp.

* * * * *

Blue Eagle problems to be prominent feature of annual meeting program of N.S.P.A. The meeting starts Oct. 24 and runs through Oct. 28, with compulsory sessions on the last two days. It will be held in the Stevens Hotel, Chicago.

* * * * *

Authority to sell 525,000 shares of Willys-Overland Crossley, Ltd., Manchester, England, for \$125,000 given Willys-Overland receivers by Federal Court. Purchaser not named. Stock valued at \$285,592 on May 28, 1933. Receivers also given permission to spend \$74,818 on repairs and maintenance on plant here.

Micromatic Develops Hone for Blind End Cylinders

THE accurate finishing of blind end cylinders has in the past presented a difficult problem to the manufacturers of this class of work, especially as applied to air-craft engines. Recent developments by the Micromatic Hone Corporation, Detroit, has enabled them to produce equipment for accurately honing blind end cylinders to closer limits than heretofore possible.

In the accompanying illustration is the new Model R-Z-S-F-E Tool, the body construction of which incorporates special features not regularly used for open end work. The head mechanism is of semi-automatic type with micrometer adjustments for expanding the diameter of the abrasive stones.

"B" is the upper ratchet collar which expands or collapses the tool to insert or withdraw it from the work by movement of one-third turn to the left. Collar "C" is actuated to make adjustment for stone wear and is the adjustment to compress the bar-type cone feed spring a predetermined amount in relation to the amount of stock to be removed by the tool.

This cone feed spring is caged under tension so as to positively control the initial pressure. When sleeve "C" is set to remove a predetermined amount of stock and collar "B" is rotated in the expanded position, the cone feed spring is compressed and, as the tool is revolved and reciprocated in the work, this spring keeps feeding out the abrasive members until it reaches the limit of its cage. For this reason, the tool cannot cut

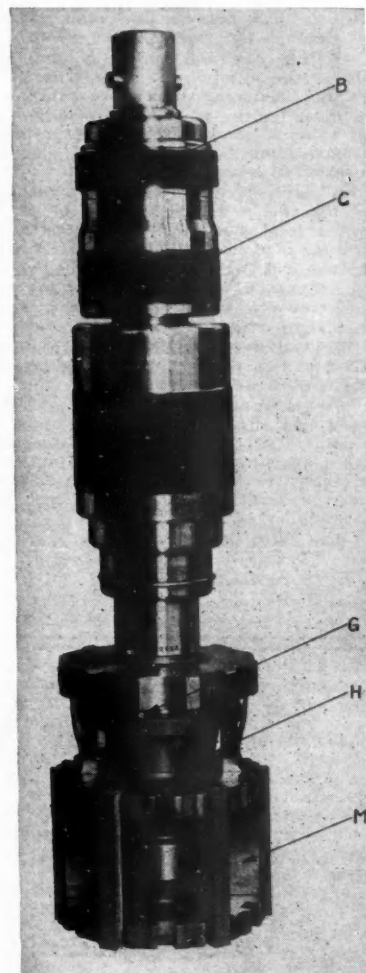
more than the relative amount of compression given to the spring by micrometer adjustment collar "C."

The expansion cone back of the stone holders is made with a pitch which is beyond the angle of reversibility so that the expanding mechanism can advance the cone but any amount of pressure on the abrasive members will not reverse the action. This angle on the cone prevents the abrasive members from backing up against the spring and, therefore, assures perfectly straight holes.

The Z-S-F-E type body is especially designed for honing blind end cylinders where normal amount of overrun of the honing sticks is not permissible. The stone holders "M" swing at the pivot point "G" as the tool is expanded in such a manner that the lower ends of the honing stones are extended outwardly at a faster ratio of travel so as to compensate for a greater degree of stone wear at the lower end of the abrasive sticks.

The stone holder retaining springs "H" hold the stone holders "M" against the expansion pins in such a way as to assure the positive collapsing of the tool when adjusting the nut "B" is actuated one-third of a turn to the left. This feature eliminates the necessity of having retaining springs at the lower end of the stones.

The stones are mounted into inexpensive light steel stampings which are discarded when the stones are worn out. This makes it unnecessary to stock a large number of expensive stone holders for the purpose of hav-

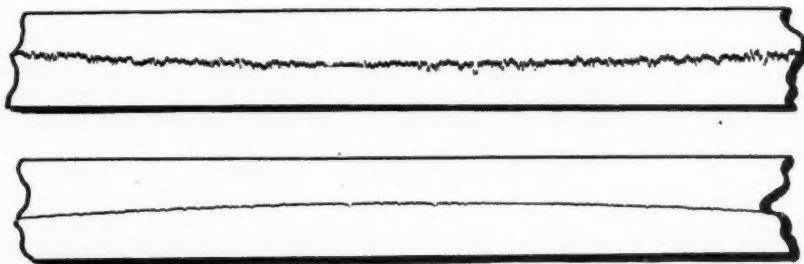


ing them in process of being mounted with new stones as well as in transit or in operation.

Error of 0.0015 in. out-of-round or taper can be corrected within a limit of 0.0005 in. by the removal of 0.0025 to 0.003 in. stock from a ground hole in hardened steel cylinder. This is considered an outstanding accomplishment as the limits are held at the extreme blind end of the bore.

It is possible to produce the new Micromatic Mirror Finish with this new tool through the adoption of a secondary honing operation, removing approximately 0.0005 to 0.0007 in. stock, from a previously honed bore. Resilient fibre wiper guides and special finishing honing sticks are assembled in the body for producing the Mirror Finish.

The Micromatic Mirror Finish as compared to the finish-ground surface on aircraft steel cylinders is best shown by the Profilograph record, taken on the Profilograph which measures surface roughness accurately in millionths of inches (see *Automotive Industries* issue of Aug. 19, 1933).



Top—Finely Ground Surface on Bore of Aircraft Steel Cylinder. Below—Micromatic Mirror Finish on Bore of Aircraft Steel Cylinder

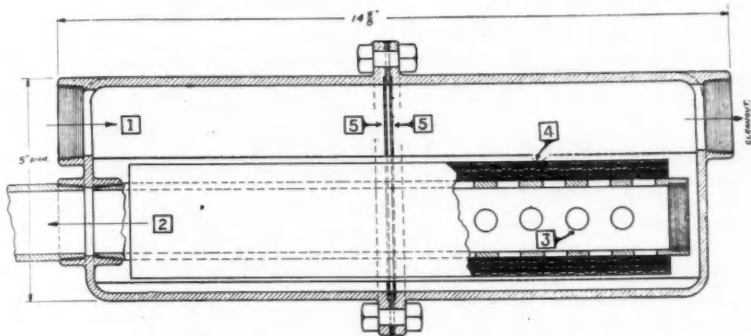
Note: Scale — Vertical $1/32" = 15$ millionths in. (2300X)
Horizontal $1/32" = .001"$ (30X)

NEW DEVELOPMENTS

Automotive Parts, Accessories and Production Tools

Keeps Cutting Fluid Clean

Cleanness of cutting fluids used in grinders and other production equipment where surface quality is an essential is said to be secured with the special filter unit recently introduced by the Howard B. Morrow Co., Mishawaka, Ind.



The Morrow filter for cutting fluids

It is mounted on the machine with inlet and outlet, 1 and 2, vertical. Flushing of the sump is by means of fresh water introduced into the outlet line. This brings about a reversal of flow which cleans the element without wasting any of the coolant.

Referring to the drawing of the filter, 1 is the inlet from the pump, 2, the outlet from the filter, 3 are holes through the central core to permit passage of the fluid after it has found its way through the filtering membranes, 4 and 5 are perforated plates arranged to break the force of the inflow, thus permitting considerable foreign matter to fall through the sump by gravity. The area of the holes, 3, exceeds the area of the inlet and outlet openings by 5.3 to 1. In the filter shown here, the area of the filtering element is 113 sq. in. against 1.489 in. of inlet and outlet, which means that the sump may be more than half filled with sediment without restricting the free flow of fluid through the unit.

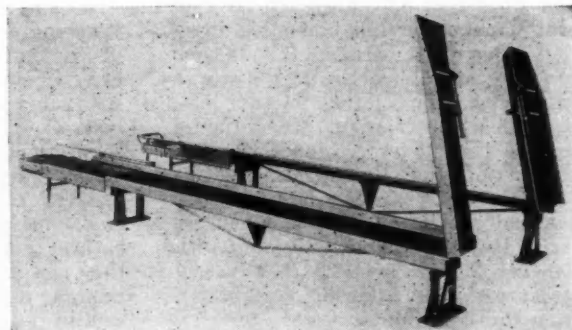
Flushing is accomplished by the introduction of a tee and valve near

the inlet and outlet openings, the tee having a 1/2 in. side opening connecting to a fresh water pipe.

Quick Action for Inspection Service

A new addition to the Bendix-Feragen line of inspection and service devices is the Feragen chassis analyser, just announced, of which an illustration is shown herewith. It serves to check the caster, camber, king-pin angle, toe-in, chassis frame, front axle, rear-axle housing, and wheels, the latter for concentricity and wobble.

The Feragen analyser serves equally well for wheel-alignment corrections. Full-floating turntables and a "Wee-Gee" board, both heavily nickeled, are built in level with the runways. The turntables have degree scales on the outer edges and are provided with means for a quick lock for use when the camber or caster is to be changed. Nickeled scale bars, in conjunction with the chassis-frame gage, are used for inspecting frames, axles and rear-



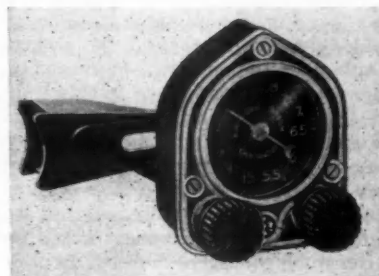
Bendix - Feragen chassis analyzer

axle housings. Means are provided for quickly raising and lowering the front end of the runways during the camber-setting operation.

The analyser runways are 186 in. long; the approaches, 60 in. When the approaches are extended the outfit will handle vehicles of 172-in. wheelbase with 60 in. to spare. With the approaches folded it occupies no more space than an ordinary passenger car, its length then being 15 1/2 ft. The price of the equipment is \$370.00. It is being manufactured by the Bendix-Feragen Division of Bendix Products Corp., South Bend, Ind.

Bosch Vibro-Power Automobile Radio Receiver

United American Bosch Corporation, Springfield, Mass., has added the De-Luxe, Vibro-Power Model No. 160 to its line of automobile radio receivers. This is a six-tube receiver, but double-



Tuning Dial of the Bosch Radio Model No. 160

action and triple-action tubes, greater power output, and a new, separately housed speaker are said to give it greater performance than is usually associated with that number of tubes.

The speaker is a floating-coil, electro-dynamic unit with large diaphragm contained in a bell-shaped housing of non-metallic, non-resilient material, the face of which is protected by a steel grille. Either steering-post control or instrument-board control is available. Both types have non-glare dials, calibrated in kilocycles for ease of tuning.

Prices on the various models of automobile receiving sets of the Bosch line for the Eastern market have recently been revised as follows: Model 140, \$42.95; Model 150, \$49.95; Model 160, \$59.95. Prices for the Western market are \$2.00 higher.

NRA Increases General Motors Labor Costs \$21 per Car, Knudsen Reveals

Says Strike Will Not Delay New Models Seriously Due to Sending Tool and Die Work Out of Affected Areas—Most GM Plants Now Have Works Council Plans

DETROIT—General Motors labor cost under the NRA have increased approximately an average of \$21 per car, aside from labor increases on raw materials, William S. Knudsen, newly appointed executive vice-president, General Motors Corp., revealed at a press conference here yesterday.

Such increases differ among the car companies involved, Mr. Knudsen stated, but details were not revealed as to the variations. As far as parts contracts were concerned, many of these so far have not been affected since a good proportion of such contracts ran for the life of the 1933 models and have not been revised upward since the adoption of NRA codes. Increases are therefore to be expected when new contracts are drawn up for 1934 requirements.

Neither Mr. Knudsen nor M. E. Coyle, newly appointed general manager of Chevrolet, would commit themselves as regarding possible price changes on completed cars for next year. It was made clear, however, that reductions in price certainly were not to be anticipated.

With regard to the present strike situation, Mr. Knudsen stated that he was leaving for Washington to attend the meeting called by Senator Wagner's Labor Board. (Subsequently, as reported elsewhere in this issue, Mr. Knudsen decided not to appear.) He stated that while the strike had been general throughout the Detroit area, conferences with other automobile producers had indicated that announcements of new models would not be seriously delayed thereby, primarily because much of the work has been taken care of by tool and die jobbers outside of the State. He estimated that at present a total of 66 per cent of Chevrolet tool and die makers are back at work.

C. E. Wilson, vice-president, General Motors Corp., in charge of parts and accessories divisions, stated that the "works councils" plans were now in operation in most of the G.M. plants with the exception of some smaller communities where, apparently, the plans have not been received with favor.

R. H. Grant, vice-president of the Corporation in charge of sales, stated that he believed 1934 would show material improvement over 1933 in passenger car sales. Nineteen thirty-three volume exceeded anticipations by 20 per cent, according to Mr. Grant, based on forecasts made during the banking holiday last March.

According to Mr. Knudsen, General Motors factory employment now to-

tals just under 150,000 men, as compared with roughly 95,000 a year ago.

Leveling out of production was set by Mr. Knudsen as the major goal for next year, in an effort further to stabilize employment in the industry.

Knudsen Named G-M Executive Vice - Pres.

NEW YORK—W. S. Knudsen, one of the industry's best known and highly respected leaders, became executive vice-president of the General Motors Corporation on Oct. 16, according to announcement by Alfred P. Sloan, Jr., president of the corporation.

In his new capacity Mr. Knudsen is the chief executive officer of the corporation in Detroit and assumes general supervision over all car and body manufacturing operations, both in the United States and Canada.



W. S. Knudsen

Mr. Knudsen was elected president of the Chevrolet Motor Co. in 1924 and since that date has been its general manager. While under his direction Chevrolet became the largest producer of automobiles in the world, displacing the Ford Motor Co., through which company Mr. Knudsen entered the industry. Since the formation of the Buick-Olds Pontiac Sales Co. last year, Mr. Knudsen also has had charge of Pontiac manufacture. He first became associated with General Motors in 1922 in advisory capacity shortly after his resignation from the Ford Motor Co.

A. F. of L. Complaints to NRA on Company Unions

Charges Discrimination in Chrysler Elections—Tool Makers Strike Stalemate

DETROIT—With the tool and die makers' strike apparently at an impasse and quieting down, two new battles loomed in Washington. The first of these is a conference before the National Labor Board between representatives of the Mechanics Educational Society sponsoring the strike and various employers in the Detroit area. Both factions have indicated their willingness to appear before the Board.

The second battle is in the form of action against the formation of company unions by automotive concerns. A complaint has been registered with the NRA in Washington by the A. F. of L. local representing Chrysler workers affiliated with that organization regarding discrimination against their members. A secret ballot under governmental supervision is asked for Chrysler employees to determine the wishes of Chrysler labor with respect to methods of unionization.

Under the secret ballot conducted by the Chrysler Corp. nearly 80 per cent of all voting expressed themselves in favor of a "works council" plan.

Developments in the tool and die strike include the abandonment this week of picket lines at some plants, notably Buick and A.C. Spark Plug in Flint. Few of the remaining die-hards are returning to seek employment at this time.

A major point to be fought in Washington probably is the question of whether the men still on "strike" are still employees of their companies. According to an ultimatum published last week, employers state that all connections with workers still on strike have been severed. Former strikers recently have been seeking employment in other organizations rather than in the ones with which they were formerly connected, although the total number has been small.

NEWS

October Domestic Sales Speed Up After Slow Start Making 160,000 Total Probable

Government Purchases Help to Boost Truck Sales
Volume—Chrysler Near 1929 High Record—Olds
and Pontiac Report Big Gains Over Last October

By Athel F. Denham,
Field Editor, Automotive Industries

Wolman Ruling Bars 30-Hour Work Week

Revealed That NRA
Will Not Apply It
to Heavy Industries

WASHINGTON—Coming on the heels of the reiterated demand of the American Federation of Labor at its recent convention for the 30-hr. week in all industries, much significance is given to a declaration of Assistant Administrator George S. Brady that "in these capital goods industries, the head of the Labor Advisory Board of NRA has ruled quite otherwise." Dr. Leo Wolman is chairman of the Labor Board.

That such a ruling had been made certainly was not generally known. Coming from the source it has come from it may be considered a matter of finality for there apparently will be no successful opposition to it, despite the formula of the American Federation of Labor, a formula that many think simply is a mark to shoot at and one that eventually may be struck, but not in the near future. The ruling is considered, therefore, to assure the automotive and related industries, producers of capital goods, that the 30-hr. bogey is not in the mill for grinding at an early date.

Mr. Brady gave notice of the ruling in the course of a joint hearing last Wednesday on codes for the canning and packing and packaging machinery industries.

Newton A. Wolcott

WARREN, OHIO—Newton A. Wolcott, president of the Packard Electric Co. and of the local Chamber of Commerce, died October 15 at the age of 58. Mr. Wolcott built the Packard company to the largest supplier of automotive cables in the country. He continued as its head following its purchase in 1932 by General Motors.

Mr. Wolcott joined the Packard Electric Co. in 1903. Three years later he became manager. In 1909 he was elected treasurer and in 1916 became its president.

DETROIT—Estimates of expected October domestic deliveries of new passenger cars has been revised upward as the result of factory sales reports covering the first 10 days or two weeks of the month. Indications now point to a total in excess of 130,000 as compared with the previous estimate of 125,000.

While October opened slow there has been a material increase in retail deliveries around the middle of the month. If the normal monthly trend continues and the closing weeks show further gains, a total in excess of 135,000 is entirely possible. This would place total domestic sales, cars and trucks, in the neighborhood of 160,000, an increase of 105 per cent over October last year.

Distorting the truck sales picture somewhat are the considerable quantities of commercial vehicles being delivered to governmental agencies at this time. If these are taken into account, truck sales may easily boost the final total by several thousands.

Individual company reports follow: Chrysler Corporation for first nine months of this year reports total sales of 387,266 units, an increase of 212,736 over the same period last year, and within 7167 units of previous high record in 1929.

Plymouth, with total of 138,619, showed the largest increase of 154 per cent. Total September sales were 53,985, representing the best September on record and bringing the third quarter total to 169,652, virtually 10,000 units ahead of second quarter this year.

Pontiac retail deliveries for the first 10 days of October exceeded the same period last year by 135 per cent.

Oldsmobile retail domestic deliveries represented a gain of 80 per cent over the same period last year.

Retail deliveries of Dodge and Plymouth passenger cars and Dodge commercial vehicles for week ending Oct. 14 totaled 3879, an increase of 3 per cent over previous week. Truck sales increased in same period approximately 11 per cent.

For the fifth consecutive month, Pierce-Arrow shipments in September substantially exceeded those of the corresponding month a year ago, according to figures released by Roy H. Faulkner, vice-president in charge of sales. The September increase with that of July and August represents a 70 per cent improvement in volume for the third quarter of 1933 as compared with the third quarter of 1932.

Hudson-Essex sales in the first week of October were 147.5 per cent of those for the corresponding week of 1932; 150.9 per cent in comparison with 1931, and 120.4 per cent in comparison with 1930. There is every indication, according to general sales manager Abbott, that this will also be the largest October since 1929.

Retail sales of Plymouth cars by dealers for the week ending Oct. 7 totaled 5630 units, as compared with 1091 cars sold the same week of last year. This is an increase of 416 per cent over the same period of 1932.

Cast Alloy-Iron Crank Shafts in Ford V-8s

Dealers Also Receiving Cars
With Self-Feeding Carburetors

DETROIT—Some cars now being received by Ford dealers are fitted with cast alloy-iron crankshafts and Bracke-Holley carburetors which incorporate means for drawing the fuel from the supply tank at the rear, thus dispensing with the mechanical fuel pump.

While few details on the crankshaft are available, both main and connecting rod journals are of about the same size as with the steel shaft. The main external difference is found in the crankpins which are cored out for lightness. This coring is not symmetrical with the center line of the crankpin at right angles to the crankshaft, but is slightly offset. Cars fitted with the new cast crankshafts are identified by a small copper tag attached to one of the cylinder heads.

The new carburetor, manufactured by the Holley Carburetor Company, is provided with summer and winter adjustment in addition to the conventional idling adjustment. In the case of carburetor trouble, dealers have been instructed to remove and return the units without attempting any repairs.

Plymouth Offers Aluminum Cylinder Head Option

DETROIT—Bohnalite aluminum high-compression cylinder heads with a ratio of 6.5 to one are being offered both as optional equipment and for installation on cars in the field by the Plymouth Motor Car Company. Retail list price is \$12.50 when supplied at the factory on new cars. On cars in the field an additional charge is, of course, made for installation.

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

General trade last week, stimulated by seasonal buying, made the best showing thus far for the fall season. The labor disturbances that have been handicapping industry during the recent weeks are slow in disappearing. Among encouraging developments were signs that the "Buy Now" campaign increased demand, the formation of the new liquidating corporation formed by the Government for the purpose of releasing deposits of closed banks, and the announcement that the Administration's long-delayed public works project has started.

Freight Loadings Drop

Railway freight loadings during the week ended Oct. 7 totaled 654,428 cars, which marks a decrease of 7399 cars below those during the preceding week, an increase of 29,339 cars above those a year ago, and a decrease of 109,390 cars below those two years ago.

Department Stores Quiet

The Federal Reserve Board's adjusted index of department store sales during September showed an increase of less than the estimated seasonal amount. The preliminary index for that month stood at 70, with the 1923-25 average equal to 100, as against 77 for August and 70 for July.

Power Production Up

Production of electricity by the electric light and power industry in the United States dur-

ing the week ended Oct. 7 was 9.3 per cent above that a year ago.

Employment Better

New York State factory employment during the month ended Sept. 15 increased six per cent, while aggregate payrolls rose eight per cent.

Lumber production during the week ended Oct. 7 was the smallest for any full week since early July; shipments were lighter than since early May, and orders were below those in the three weeks preceding. However, production was 35 per cent above that a year ago, while shipments were three per cent smaller and orders one per cent larger.

Wholesale Prices at New 1933 High

Professor Fisher's index of wholesale commodity prices during the week ended Oct. 16 stood at 72.2, the highest for the year, as against 71.1 the week before and 71.4 two weeks before.

Federal Reserve Statement

The consolidated statement of the Federal Reserve banks for the week ended Oct. 11 showed an increase of \$35,000,000 in holdings of Government securities. Holdings of discounted bills decreased \$4,000,000, and holdings of bills bought in the open market remained unchanged. The reserve ratio on Oct. 11 was 65.7 per cent, as against 65.9 per cent a week earlier and 66.1 per cent two weeks earlier.

Chrysler Representation Plan for Workers

(Continued from page 489)

Vice-President of the Plant Division in which the Council is located.

6. The Operating Vice-President may confer with the Joint Council as a whole, or any committee thereof, or any group of Employee Representatives, to bring out all the facts in the case.

7. Within ten days after the matter has been referred to him, the Operating Vice-President shall either—

- (a) Propose a settlement; or
- (b) Refer the matter to arbitration.

Arbitration

1. Whenever a matter is referred to arbitration, the Operating Vice-President shall meet with an Employee Represen-

tative selected by the Employee members of the Joint Council for such meeting, and the Operating Vice-President and the said Employee Representative shall then proceed to select an impartial and disinterested arbitrator. If they cannot agree upon an arbitrator, then within ten days thereafter the Operating Vice-President shall select one arbitrator, and the Employees' Representative shall select another, and if these two arbitrators agree their decision shall be final. If they do not agree, within twenty days they shall select and call in a third arbitrator, and a decision of a majority of these three arbitrators shall be final and binding in the matter.

2. The arbitrators shall be furnished all the information and testimony which they may deem necessary regarding the matter in arbitration.

Guaranty of Independence of Action

1. It is understood and agreed Em-

ployee Representatives shall be free to discharge their duties in an independent manner, without fear that their individual relations with the Company may be affected in the least degree by any action taken by them in good faith in their Representative capacity.

Adoption of the Plan

1. This plan shall become effective at any plant upon adoption by a majority vote of the Employees of such plant voting thereon at a special election held for that purpose.

Ruark Objects to APEM Statement on 1934 Show

Says It Overlooks MEWA Rights in Trade Exhibition

CHICAGO—B. W. Ruark, general manager of the Motor & Equipment Wholesalers Association, takes exception to the recent APEM explanation of its policy on the 1934 trade show, in a statement issued this week. Mr. Ruark's objection is to the statement that the 1934 show "should be conducted and managed by the NSPA in cooperation with APEM."

Pointing out that "MEWA members have had a very definite interest in the show over a long period, dating from the very first one held in the industry," Mr. Ruark calls attention to the fact that APEM makes no mention of MEWA and states that "it is very apparent that the interests and rights of MEWA members with respect to the show have been entirely overlooked."

His further comments follow in part:

"Since it would be most unreasonable to assume that the opinion of the APEM Board of Directors on the show, as stated, was made without agreement by and with the management of the NSPA, a discussion of this subject must be necessary . . . involve both the management of the NSPA and APEM.

"If this ignoring of the MEWA membership and a large number of other jobbers by the APEM and the management of the NSPA is an indication of their general attitude toward other mighty important matters in which those jobbers also have a legitimate interest, then it is apparent that it will be to the interest of jobbers to encourage an organization of manufacturers who can be depended upon to give proper consideration to the jobbing industry.

"Is the management of the APEM sufficiently representative of after-market manufacturers to justify use of its influence in the attempt to control the show in cooperation with only one organization engaged in the after-market, even if it were conceded that that organization could properly represent jobbing interests? Or is the management of the APEM predominantly representative of original equipment interests which are secondarily or not at all engaged in after-market operations?

"The MEWA membership . . . is unwilling that their interests in show matters be left in the hands of the APEM and the management of any dual type association.

"Jobbers have as great an interest in and right to participate in trade shows as do manufacturers. In the individual sale between the manufacturer and the jobber, the latter has as great an interest as the former. The show represents mass selling. It extends the principle of mutual interest between seller and buyer en masse. The view that manufacturers only have the right to operate the show, if it be true that the APEM and the management of the NSPA hold that view, is untenable and cannot be justified by sound reasoning. Neither can the effort to exclude MEWA members from official participation in the show."

Ford Staging Big Working Display of Products and Processes in Detroit Starting October 21

DETROIT—A pageant of the part science and industry have played in the advances achieved in motor car building since the advent of the first automobile is to be presented in a national Ford Exposition of Progress which opens here Oct. 21 in Convention Hall. The exposition which will be free to the public, will continue through Oct. 28.

Not only the Ford Motor Company but more than 175 other industries will participate in the exposition. The exhibits will portray how farms, mines and factories in all parts of the United States and in many foreign countries contribute to the manufacture of the modern motor car.

A continuous program of music and other entertainment is scheduled during the exposition. School children have been invited to attend and prizes totalling \$1,100 are to be awarded for the best competitions by students on things that interest them among the exhibits, while other prizes will go to the schools represented by the three winning contestants.

In the center of the great exhibition space will be a replica of the one-story brick workshop on Bagley Avenue where Henry Ford built his first motor car back in 1893. The first car as well as the lathe, drill press and other tools in Mr. Ford's first workshop will be moved to the exposition. Hard by will be Mr. Ford's collection of historic motor cars depicting the progress of motor car transportation down to the present.

It will include a two-cylinder Austin steamer dating back to 1863, a Benz of 1888, an Olds of 1899, the third Ford ever built; the famous "999" racer of 1902, the first Model A and the succeeding models down through the years to the V-8 of today.

Around the historic motor car pageant, production process will be displayed. An entire assembly line is being moved into the hall by the Briggs Manufacturing Co. so Ford all-steel bodies can be assembled. Other body manufacturing operations will be shown by the Murray Corporation of America.

The fabrication and vulcanizing of tires will be demonstrated by crews of workmen in the United States Tire Co. exhibit, close by a miniature Sumatra rubber plantation, with living rubber trees imported for the exposition. Another exhibit will be that of the Firestone Tire and Rubber Co. In another corner of the great hall, steel-spoke wheels will be formed on a battery of eight giant welders. Processing of other parts making up a motor car also will be shown.

Exhibits of the new steels and other products of research will be displayed. The Standard Oil Company will exhibit a modern service station, contrasted with the old-time blacksmith shop, which was the first service station.

No Drawback if Freewheel Unit Is Classed as Clutch

TORONTO—A sensation developed at the hearing by the Canadian Tariff Board into the complaint of the Canadian Automobile Chamber of Commerce that automobile manufacturers of the Dominion were not being granted a drawback in duty of 60 per cent by the Federal Department of National Revenue on free-wheeling units brought into the country for installation in new automobiles. On June 1 last the Department had ruled that the units were essentially an integral part of transmissions and were, therefore, entitled to a drawback of only 25 per cent in duty. The result was an appeal to the Tariff Board for a greater rebate, the application being heard on Friday, October 13.

The bomb was exploded when L. F. Jackson, representing the Department of National Revenue, announced that free-wheeling units were really modified clutches and, accordingly, Canadian companies were not entitled to a drawback at all even though the units were not manufactured in Canada in any form. Because of this counter-claim and the technical intricacies of the case, the decision to reserve judgment was made by the board chairman, Hon. George H. Sedgewick, the two other members of the tribunal, Charles Hebert and Milton Campbell, supporting this move. In the meantime, the Government is charging full duty on the parts under consideration.

Parking Code Bars Price Cutting on Maintenance

WASHINGTON, D. C. — Public hearing on the code of fair competition for the motor vehicle storage and parking industry filed by the International Garage Association, will be held in the Willard Hotel here on October 27.

The code covers storage and parking and supplementary services incidental to that business which as defined cover the whole range of automotive service. In addition to the usual fair trade practices, the code provides for the publication of all price schedules and makes departure therefrom unfair competition.

Provision is also made for agree-

ments among groups of members not to expand parking or storage facilities except where the group agrees to the necessity for the proposed expansion. Such agreements are subject to NRA approval and decisions of the group may also be appealed to it.

Vidal Names Schroeder, Boutelle and Geisse

WASHINGTON, D. C.—Major R. W. Schroeder of Chicago has been appointed chief of the Airline Inspection Service and Richard S. Boutelle has been named Aeronautic Development Expert of the Aeronautics Branch, Department of Commerce. Carrying out the reorganization plan, Director Eugene L. Vidal has established a new operation for the Air Regulation Division, which will include three major sub-divisions as follows: Air Line Inspection headed by Major Schroeder, General Inspection Service under George E. Gardner, and Manufacturing Inspection Service in charge of John H. Geisse. Mr. Geisse was formerly with the Comet Engine Co. and is well known in S.A.E. circles.

Mark-Up Makes Delivery Charges Taxable

DETROIT—Rulings on the Michigan sales tax have been made in Lansing, to the effect that United States excise tax, freight charges and financing charges are deductible from the delivered price of an automobile, for tax purposes, only when they are separately indicated and no profit is made thereon. Where excise tax, freight charges, etc., are lumped together or into more general classifications of charges, the tax must be paid thereon.

Johns-Manville Reports Third Quarter Profit

NEW YORK—Johns-Manville Corporation and subsidiaries report net profit for the quarter ended September 30, after taxes, depreciation, etc., of \$444,454, against a net profit of \$92,204 in the preceding quarter and a net loss of \$277,693 in the corresponding quarter last year.

For the nine months ended September 30 the net loss was \$417,140 against a loss of \$1,792,571 in the same period last year.

Foreign Trade Report For 1932 Is Released

WASHINGTON, D. C.—The annual report of the Bureau of Foreign and Domestic Commerce, Department of Commerce, on Foreign Trade of the United States for the calendar year 1932, was released this week.

Equipment Contracts Excepted from Ban on Guaranteed Future Prices in New Tire Code

Calls for Standardization of Manufacturing Tolerances—Permits Resale Price Maintenance Contracts—New Rental and Mileage Contracts Are Barred—Trade-Ins Are Regulated

WASHINGTON — Comprehensive and drastic control of tire manufacturing is provided by the industry's revised code filed this week with NRA and on which hearings began on Oct. 20.

The code requires filing of prices and discounts and requires adherence thereto. In addition, it makes mandatory the offering of contracts to jobbers and dealers calling for maintenance of resale prices and discounts.

Guarantee of prices on future deliveries is permitted in the case of automobile manufacturers, and Federal and State governments, but to no other classes of customers.

On approval of the code, the Code Authority must undertake a study of a market stabilization plan based on cost control. An initial report is required in 30 days and final recommendations must be submitted for NRA approval within 90 days. The plan must include a uniform accounting system. Information on which other features of it will be based is to be handled through a disinterested and impartial agency to be selected by the Code Authority with NRA approval.

While this plan is in preparation, the code provides a temporary scheme for differential control which classifies the manufacturers into four groups based on volume. The groups are: A—over \$15,000,000 annual sales; B—\$6,000,000 to \$15,000,000; C—\$2,000,000 to \$6,000,000, and D—under \$2,000,000. The maximum discounts by members of the A group for any new dealer business shall not exceed the extreme current maximum standard discounts of the original equipment manufacturer from latest price lists on file with the Association. Maximum discounts for the other groups for new dealer business shall not be more than 5, 10 and 15 per cent respectively below the maximum margins of the A group. Maximum national and commercial account discounts during the interim period are to be based on standard preferred wholesale discounts for the first group, adjusted for the other groups on the 5, 10 and 15 per cent basis as above. Existing contracts providing discounts in conflict with these requirements are to be terminated as promptly as possible. Maximum jobbing discounts in addition to above are to be determined by the Code Authority within 10 days of code approval.

The long list of trade practices includes, in addition to the usual ones on misrepresentation, defamation, etc., the following: The number of complete plies from bead to bead must be marked on the side wall; price schedules filed with the Association must be adhered to; dating other than the usual spring dating plan is banned; clean-ups of obsolete merchandise must have the approval of the Code Authority and the merchandise must be suitably branded to in-

dicate that it is obsolete; dealer discounts may be given only to customers who resell at least 75 per cent of purchases; no new rental or mileage contracts are permitted, and regulation of credit practices.

The trade practice section also requires that the Code Authority get from the Tire and Rim Association standard specifications for the industry covering over-all heights, cross-sectional diameters, anti-skid depths, total tread thicknesses, etc., to standardize manufacturing tolerances. On submission and approval of these standards, after a 90-day interval, deviation from the standards is an unfair trade practice. Non-standard tires must be sold at higher prices.

"Speedstream Lines" Feature New Nashes

Six Now Has Overhead Valves, Twin Ignition

CHICAGO—Similarity of features throughout the price range, and striking stream lining of all models, characterize the 1934 Nash line, inspection of models on exhibition at a Century of Progress reveals.

With the 116-in wheelbase Big Six equipped with overhead valves and twin ignition, the chassis of all models are now more similar than in previous years. All models have the new Bendix equal action brakes, silent transmissions with helical gears on spiral shafts, and rubber bushed universal joints. Pressing the clutch pedal all the way down starts the engine. The starter circuit, however, can be completed only when the engine is stopped.

Double windshield wipers driven from the engine camshaft, a built-in ventilating system that does not obstruct vision, and large instrument panels, designed to receive radio sets if desired, are seen in all models.

Bodies carry out the "Speedstream" motif. From bumper to bumper there is a harmonious sweep. Even the lamps, horns, and bumpers blend in with the "Speedstream" lines. Parking lamps in the front fenders are perfectly streamlined into those units. Tail lamps are similarly mounted.

Most striking are those models that include the "Speedstream" rear wheel shield. This feature is added at slight extra cost and lends a "Beach Car" look to those models that feature it. The ribboned "Speedstream" lines seen in fenders and hood add rigidity to those parts and harmonize with the new design.

The price schedule of the 1934 Nash

cars—referred to as the "1200 series"—is as follows:

Big Six—116 in. W. B.

Five-passenger sedan (six window).....	\$785
Business coupe	765
Four-passenger coupe	785
Five-passenger brougham (four-door, four-window with trunk)....	795
Five-passenger town sedan (four-window, without trunk)	745

Advanced Eight—121 in. W. B.

Five-passenger sedan (six-window).....	1,065
Business coupe	1,045
Four-passenger coupe	1,065
Five-passenger brougham (four-door, four-window, with trunk)....	1,085
Five-passenger town sedan (four-window, without trunk)	1,035

Ambassador Eight—133 and 142 in. W. B.

Five-passenger sedan (six-window).....	1,575
Five-passenger sedan (four-door, six-window, with trunk)	1,625
Seven-passenger sedan (142 in. wheelbase)	1,955
Limousine (142 in. wheelbase).....	2,055
Five-passenger brougham (four-door, four-window, with trunk)....	1,820

Official factory announcement of the new model is expected early in November.

Coyle Named General Manager of Chevrolet

DETROIT—Appointment of M. E. Coyle to the position of general manager of Chevrolet was announced yesterday by W. S. Knudsen, executive vice-president of General Motors Corp. Mr. Coyle, who succeeds to a title formerly held by Mr. Knudsen,



M. E. Coyle

joined General Motors Corp. in 1911. In 1914 he became auditor of the Oakland Motor Car Co. and three years later was appointed comptroller of the Mason Motor Co. at Flint, producers of engines for the early Chevrolets. Soon thereafter he was made comptroller in charge of all Chevrolet operations at headquarters in New York and Detroit, holding this position until 1925. In this year Mr. Knudsen appointed Mr. Coyle assistant to him and in 1929 he was made vice-president and general auditor of Chevrolet.

During Mr. Knudsen's illness last winter Mr. Coyle had full charge of all Chevrolet activities, including the introduction of new models at that time.

26 States Show No "Cracking Down"

PHILADELPHIA—September new car registration reports from 26 States provide no significant evidence of the public's having "cracked down" on Ford for failure to fly the Blue Eagle. This confirms the indication given by the first 13 States to report, as given last week in *Automotive Industries*. The percentage of total registrations obtained by each of the three leading makers in these 26 States in September is given in the following table:

	July	August	September
Ford	20.0%	21.1%	20.3%
Plymouth	18.6	19.3	20.5
Chevrolet	31.1	30.2	30.2

Graham Nets \$145,934 in First Nine Months

DETROIT—Graham-Paige Motors Corp. closed the third quarter with a three-months' profit of \$122,307 and a profit of \$145,934 over all costs in the first nine months of 1933.

Graham's operating profit in the third quarter was larger than the second quarter profit of \$110,324.

Revised Jobber Code Covers Wholesaling by Car Makers and Their Distributors

Provides for Resale Price Maintenance and Bars Sales Below Cost—Minimum Wages for Mechanical Workers Set at 35c against 50c in Dealer Code

WASHINGTON, D. C.—Wholesaling of parts, accessories and equipment by motor vehicle manufacturers, parts makers and car distributors, as well as by jobbers, will be regulated by the code of fair competition for the wholesale automotive trade if it is approved as revised for public hearing on Oct. 21. This contradicts earlier information obtained by *Automotive Industries* that the revised code would cover only wholesaling through jobber channels.

Sales below cost, as determined by uniform accounting, are barred by the code, and cutting manufacturers' resale price schedules is made unfair competition. Provision is also made, subject to NRA approval, for the legalization of contracts between manufacturer and wholesaler and between wholesaler and retailer containing agreements to maintain resale prices.

The conclusion that the code covers the wholesale function, no matter by whom performed, is based on the following code paragraphs:

"The terms 'wholesale automotive trade' and 'trade' as herein used shall mean the selling of automotive merchandise to retailers by any person, whether such person purchases or manufactures such merchandise, who maintains a regularly established place of business and who carries a merchandise inventory enabling him or it to supply the reasonable demands of the trade. The terms shall likewise include the machining or secondary processing of automotive merchandise, such as cylinder reboring, piston grinding, piston pin fitting, or the reconditioning, repairing, or installing of any component part or unit of equipment by one who sells as aforesaid.

"The term 'automotive merchandise' as used herein is defined to include any and all parts, equipment, tools, accessories and supplies used in the repair and maintenance of motor vehicles, is defined to mean automobiles, including passenger cars, trucks, truck tractors, buses, taxicabs, hearses, ambulances, and other commercial vehicles for use on the highway, excluding motorcycles, fire apparatus and tractors other than truck tractors, but including stationary and internal-combustion engines and aeronautical and marine engines, excepting tire and petroleum products related to the motor vehicle industry as may be specifically covered by any code applying to the wholesale distribution thereof duly approved by the President."

Minimum wages are set at \$13 per week, except that for those "engaged in the machining or secondary processing of products in the wholesale automotive trade, or in the reconditioning, repairing, installing or servicing of any component part or unit of equipment, and in labor operations directly incident thereto," the minimum is 35 cents an hour. This compares with the 50-cent minimum set for mechanics in the approved motor vehicle retailing code. The difference possibly may raise some interesting competitive problems. The base maximum hours are set at 44 per week.

Never Refused to Deal with Men Ford Says in Wire to Wagner Denying Discrimination Against Union Labor

WASHINGTON, D. C.—Oct. 19—Negotiations scheduled for today at the Edgewater, N. J., plant between Ford officials and the strikers' committee followed numerous telegraphic exchanges between Senator Wagner, chairman of the National Labor Board in Washington, and the Ford Motor Co. in Dearborn, Mich.

The upshot was a statement by Senator Wagner Wednesday afternoon that "excellent progress" was being made toward settlement of the strike, reference being to the meeting arranged for Thursday morning at the Edgewater plant.

"As stated this morning," said Senator Wagner Wednesday afternoon, "the Edgewater plant (Ford) officials, W. E. Moak and N. S. Brown, interrupted their conference at the Newark, N. J., NRA headquarters to telephone to Dearborn for further authorization. After telephoning they said they were instructed to state that they would deal collectively with their own employees. They declared themselves prepared to confer with the employees' committee at 10 a. m. tomorrow."

"The New Jersey NRA officers and the National Board's representative, good offices would be used, Senator proposal to the strikers' committee in the next room, and the committee agreed to the meeting."

It was clear that the Ford officials at that time were not prepared to arbitrate through the National Board, however, for Senator Wagner said the

meeting between the Ford officials and the strikers' committee will take place alone.

Holding out hope that the board's good offices would be used, Senator Wagner said that its representatives would be within call "should the conference desire the board's services to arbitrate any differences."

In expressing a willingness to discuss every matter in dispute Ford representatives made a reservation with regard to taking back all employees immediately, presumably due to seasonally slack production.

"Finally the Ford company representatives desired it to be known," Senator Wagner added, "that certain statements were without foundation. They declared to the conference that any prior published statement that Henry Ford is unalterably opposed to collective bargaining is erroneous."

"This board heartily concurs with the report of Mr. Wagner that excellent progress is being made. Our concern is with the important work of settling or preventing strikes and we are not to be deflected from that by irresponsible published remarks."

Press reports credit a Dearborn spokesman of the Ford company with saying that the National Labor Board will have nothing to do with the matter and that, while Ford was always ready to confer with employees, he did not see what there was to confer about inasmuch as the Edgewater plant was running.

Stout to Market Rear Engine Car, Report Says

DETROIT—It is reported that a rear-engined, light-weight automobile with independently sprung rear axle will be offered in small quantities to the public next year by William B. Stout, noted airplane designer. The first car is reported to be under construction at the present time in the Stout Engineering Laboratories here.

NRA Hearing in 22½ Min.

WASHINGTON—Taking rank as the second shortest hearing for any industry so far, the code of fair competition for the Drive-It-Yourself industry was considered for only 22½ min. Monday, when it was presented to Assistant Deputy Administrator E. E. Hughes.

Secret Service Trail Bus Code Thieves

WASHINGTON—Sleuths from the Bureau of Investigation, Department of Justice, are trying to trail down the theft of the NRA report on the motor bus code.

For it is not dime novel fiction but a fact that the report together with other papers has been taken from the brief case of Industrial Adviser R. T. Whiting. This case of attempted vandalism has been reported to Chief J. Edgar Hoover of the Bureau of Investigation by Deputy Administrator Malcolm Muir. In a letter to Mr. Hoover, Mr. Muir revealed that on two occasions the brief case of Mr. Whiting has been broken open. Papers, including the motor bus code, were taken. Other papers in the case were mutilated. Mystery surrounds the reason for taking the report and papers. Mr. Muir says that exact copies of Mr. Whiting's report are in the files

of his office, frustrating the efforts of the vandals, who evidently have no regard for fair trade practices and whose code is held to be highly reprehensible.

Packard Builds America's Worst Road for Testing

DETROIT—What has been called America's worst motor car road is now being built at the plant of the Packard Motor Car Company. It is being made of granite boulders and cobble stones, and ruts, bumps and holes are being built into it. At one point deep holes alternate on each side so that a car will be given a series of wrenching twists.

The road, which provides standardized conditions, is a part of a new testing plant which is being built on a ten-acre tract of land inside the Packard factory. It will supplement the Packard Proving Grounds, where main testing work will continue.

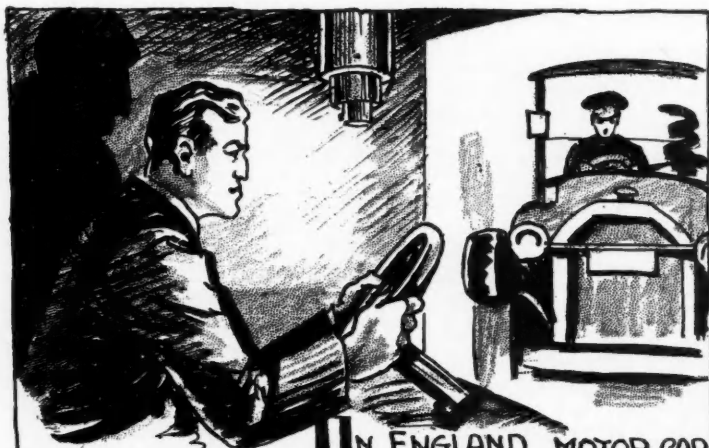
World Business Recovering Conference Board Finds

NEW YORK—Since the summer of 1932, when the low point of the world depression was reached, there has been a marked improvement in business activity in the principal industrial countries, accompanied by a recovery in world prices of staple commodities. This is the general conclusion in respect to world economic conditions and trends presented in a statement issued by the National Industrial Conference Board.

The world-wide improvement, the Conference Board finds, occurred largely in the last four months of 1932. In 1933 business recovery continued through the month of July. Statistics for the month of August are not yet available, and it is impossible to say whether or not the rest of the world has experienced a recession in business activity similar to that which occurred in the United States.

Automotive Oddities—By Pete Keenan

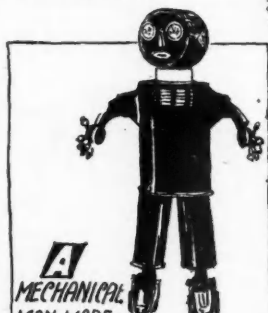
Write us if you
know an Oddity



**IN ENGLAND MOTOR CAR
DRIVERS ARE EXAMINED BY MOTION PICTURES
FOR NERVE REACTION IN EMERGENCIES.**



**GENERAL DE PINEDO TOOK OFF IN
AN AL SMITH BROWN DERBY FOR
LUCK JUST BEFORE HE WAS KILLED.**



**A
MECHANICAL
MAN MADE
ENTIRELY OF AC PRODUCTS
AT THE CHICAGO
WORLD FAIR.**



GLEN 'POP' WARNER

FAMOUS FOOTBALL COACH DRIVES AN
"ANCIENT" 1919 CAR HE BOUGHT FROM
A JUNK MAN IN CALIFORNIA FOR \$15⁰⁰
HE BROUGHT IT TO PHILADELPHIA WITH HIM.

Gas Taxes Then and Now

	1926 Cents	1933 Cents
Tax	2.34	5.64
Freight	3.00	3.00
Marketing	7.61	6.00
Refiner, Pipe Line, Producer...	10.31	5.00
Total	23.26	19.64

The tax collector, as these figures from the *Oil and Gas Journal* show, now gets a larger slice of the retail price than the producer and manufacturer combined.

New Franklin Prices Up \$50 on the Olympic

SYRACUSE, N. Y.—New prices announced on the Olympic Series of the Franklin are \$50 higher, while prices on the Series 16 are up from \$250 to \$300. The Series 17 remains at the old basis.

Following are the new prices for the various body models:

	Old Prices	New Prices	Increase
Olympic			
Sedan	\$1385	\$1435	\$50
Coupe	1385	1435	50
Conv. Coupe..	1500	1550	50
Series 16			
Sedan	\$1935	\$2185	\$250
Sedan, Oxford	1995	2245	250
Sedan	2135	2385	250
Club Sedan....	1985	2235	300
Limousine		2535	

Eaton Earns \$292,895

CLEVELAND—A net profit of \$292,895, after all charges is reported by the Eaton Manufacturing Company for the nine months ended September 30 as contrasted with a net loss of \$268,400 in the same period last year. Net profit in the third quarter of this year was \$261,642 as compared with a profit of \$268,432 in the second quarter, and a loss of \$252,623 in the third quarter last year.

Nash Prices for 1934

DETROIT—Nash distributors here have following price ranges on the new line:

Advanced six—\$745 to \$795.
Advanced eight—\$1035 to \$1085.
Ambassador eight—\$1575 to \$1625 (on 131 in. wheelbase).
Ambassador eight—\$1825 to \$1855 (on 142 in. wheelbase).

Waukesha Cuts Loss

WAUKESHA, WIS. — Waukesha Motor Co. and subsidiaries report net loss after charges of \$123,102 for the year ended July 1, 1933, against loss of \$485,142 in the previous fiscal year.

Thirty Makes Draw Space for National Motor Shows at New York and Chicago

Hastings Says Management Will Encourage Demonstration Devices in Exhibits—Macauley Voices NACC Opposition to Code Provisions Tending to Increase Costs of Motoring

DETROIT—Thirty makes of motor vehicles will be exhibited at the forthcoming National Automobile Show in New York and Chicago, it was established on Oct. 12, when executives of as many motor companies drew for show space during a meeting of members of the National Automobile Chamber of Commerce held here in the Directors' Room of the General Motors Corporation here.

The vehicle entries in next year's shows will include 25 makes of passenger cars and five makes of trucks.

The promise that the '34 shows will be more interesting and attractive than those which have been held in the past is seen in the announcement of Charles D. Hastings, Chairman of the Hupp Motor Car Corporation and Chairman of the Chamber's Show Committee, that the management will encourage the inclusion of demonstration devices and equipment in the exhibits of participating automobile companies.

For the eighth consecutive year, Chevrolet has first choice of space, indicating that it leads the N.A.C.C. in dollar volume.

The first drawing for space in the accessory and show equipment sections of the shows was held Monday, Oct. 16, according to an announcement by Alfred Reeves, Chamber Show Managers.

Passenger car companies which will be represented at the shows include: Auburn, Buick, Cadillac, Chevrolet, Chrysler, Continental, DeSoto, Dodge Brothers, Essex, Franklin, Graham-Paige, Hudson, Hupmobile, LaSalle, Lincoln, Nash, Oldsmobile, Packard, Pierce-Arrow, Plymouth, Pontiac, Reo, Studebaker and Stutz.

The following truck manufacturers have also been allotted space for exhibits: Chevrolet, Essex, Graham Brothers (Dodge), Stewart, and Studebaker.

The drawings came at the close of a two day's session participated in by leaders of the industry and devoted to problems arising out of the development of codes, taxation and other questions affecting the cost of motor transportation.

Speakers included Alfred P. Sloan, C. W. Nash, Donaldson Brown, R. H. Grant, Roy D. Chapin, Jos. E. Fields, C. G. Abbott, K. T. Keller, W. S. Knudsen, Paul G. Hoffman, Walter P. Chrysler, E. L. Cord, R. H. Scott, B. C. Foy and B. E. Hutchinson.

Discussion brought out the fact that twenty-four codes dealing directly with phases of the automotive industry have been presented at Wash-

ington, while perhaps another hundred codes are now under consideration, which will affect the costs of motor vehicle production.

Sometime, it was pointed out, these codes may tend to restrict the use of motor transportation or greatly to increase its cost to the public.

"The general attitude of the Chamber members in these matters," said Alvan Macauley, President of the Chamber, who presided "is one of unremitting opposition to any unjustifiable increase in costs or restriction in the sound development of highway transportation. Protests have already been made on some codes where these factors appear and further developments of this sort will be watched and fought."

Under the automotive code, certain figures are required to be filed with the Government on hours of work and wages. For this purpose the National Automobile Chamber of Commerce will add to its Detroit staff a man to collect and report on the Government requirements.

The Chamber members also renewed their opposition to the discriminatory Federal excise taxes, and appearances against these levies will be made when Congress takes up that subject.

Included in the notable list attending the meeting, in addition to the speakers, were: Alvan Macauley, C. D. Hastings, T. R. Dahl, F. J. Hayes, M. L. Pulcher, Paul W. Seiler, A. E. Barit, N. E. McDarby, R. L. Newton, K. E. Gray, H. J. Klingler, D. E. Ralston, G. R. Morris, R. J. Corbitt, L. G. Peed, A. van Der Zee, J. E. Williams, F. R. Valpey, G. M. Kellogg, H. R. LeBlond, A. S. Hatch, Wm. A. Blees, M. A. Cudlip, F. H. McKinney, T. J. O'Rourke, E. G. Poxson, E. M. Sternberg, T. R. Lippard, H. B. Harper, Alfred Reeves, J. S. Marvin, Pyke Johnson and K. A. Moore.

Sweeten Wins \$100,000 Verdict in Ford Suit

PHILADELPHIA—Ford Motor Co. was ordered to pay the bankrupt Sweeten Automobile Co. \$100,000 damages by a Common Pleas jury, following the trial which ended here on October 13. The suit grew out of the purchase of the Lincoln company by the Fords and the principle point at issue was whether in the purchase of the Lincoln company, the Fords assumed its liabilities. The Fords denied that they had assumed such responsibility.

MEMA-SEA Petition Asks Oil Code Change

Shop Equipment Makers Contend Present Code Threatens Distribution

WASHINGTON — Amendment of the petroleum code so that it will not be interpreted to mean that automotive jobbers who sell petroleum products must either quit doing so or give up the sale of types of shop equipment proscribed for petroleum wholesalers, is requested in a petition addressed to Secretary of the Interior and Oil Code Administrator Ickes signed by the Motor and Equipment Manufacturers Association and the Shop Equipment Associates.

The petition requests the Article V, Rule 7, be amended to read: "This rule shall not apply to the sale of equipment by the manufacturer or the wholesaler thereof where such sale is not conditioned upon the purchase or use of petroleum products." The italicized words constitute the amendment.

A literal interpretation of the code would make it necessary for automotive jobbers, as *Automotive Industries* first pointed out in its issue of Aug. 26, to give up either the sale of petroleum products or the proscribed articles of shop equipment. This interpretation, which is the one the Planning and Coordinating Committee of the Oil Industry places on the code, obviously would work great hardship on manufacturers of both classes of products who are dependent on the automotive jobber for distribution. It is understood that the petition points out that automotive jobbers or manufacturers had no voice in framing the oil code, that they do not condition the sale of shop equipment on the purchase of petroleum products, that the intent of the code was to end destructive competition among petroleum companies in the distribution of shop equipment and that manufacturers who distribute their equipment through automotive jobbers are in danger of losing their entire distribution system unless the code is amended or interpreted to permit automotive jobbers to sell both petroleum products and the proscribed equipment.

Culbertson to Speak at Chicago Overseas Dinner

NEW YORK—W. S. Culbertson, International Trade Adviser, will be the featured speaker at the ninth annual dinner of the Overseas Automotive Club to be held at the Stevens Hotel, Chicago, Nov. 1, during the coming Joint Trade Show. A. L. Frank, vice-president, Studebaker-Pierce Arrow Export Corp., will also speak. R. C. Thompson, export manager, Prest-O-Lite and USL, will preside.

Because of reviving export business, the decreased cost of travel resulting from the depreciation of the dollar, and because of the Century of Progress, the largest attendance at the show of overseas visitors since 1929 is expected.

Truckers Charge Steel Code Is Discriminatory

Brief Says 65% Allowance on All-Rail Freight Puts Unfair Handicap on Them

WASHINGTON, Oct. 19—Request that provisions relating to delivered prices be eliminated from the steel code is made in a protest filed with the National Recovery Administration by the American Trucking Associations, Inc.

Especial attack is made upon an Institute resolution which permits a steel manufacturer to allow a reduction in the truck delivered price of steel equal to 65 per cent of the carload all-rail rate. The effect of this is to increase the base price on truck shipments by 35 per cent of the all-rail freight. The same question of delivered price provisions in the cement code has arisen and the trucking association has filed a brief in protest against provisions in that code also. It is charged that the provisions "smack of a resolution to use only railroads in the delivery of steel."

The Institute resolution covering allowance for truck shipments, included

in the brief, reads as follows:

"In any case in which any purchaser shall require that any product purchased by him for a member of the Code be delivered from the plant of such member by truck and such truck is provided, directly or indirectly, by such purchaser and for his account, such member of the Code may allow a reduction in the delivered price for such product otherwise chargeable under Section 4 of Schedule E of the Code equal to 65 per cent of the carload all-rail published tariff freight charges from the plant of such member of the Code from which such product was shipped to the place of delivery of such product by truck to such purchaser."

Ford Reopens Chester Plant

CHESTER, PA.—The Ford assembly plant here, closed since Sept. 26 because of a strike, reopened on Oct. 16. Less than a thousand men were called back, due to seasonal curtailment in production. Those who returned have formed an organization called the Loyal Ford Employees Association.

Mayo Reelected to State Board

DETROIT—William B. Mayo, formerly chief engineer of the Ford Motor Company, was reelected chairman of the state board of aeronautics at its recent regular meeting.

CALENDAR OF COMING EVENTS

SHOWS

Automotive Service Industries Show, M.E.M.A., N.S.P.A., M.E.W.A., ChicagoOct. 30-Nov 4
English Truck Show, Olympia.....Nov. 2-11
English Motorcycle & Cycle Show, OlympiaNov. 25-Dec. 2
New York, Automobile Show.....Jan. 6-13
Los Angeles, Automobile Show.....Jan. 6-14
Toronto, Ont., Automobile Show, Jan. 13-20
Milwaukee, Wis., Automobile Show, Jan. 13-20
Newark, N. J., Automobile Show, Jan. 13-20
Cincinnati, Ohio, Automobile Show, Jan. 14-20
Philadelphia, Pa., Automobile Show, Jan. 15-20
Detroit, Mich., Automobile Show, Jan. 20-27
Hartford, Conn., Automobile Show, Jan. 20-27
Baltimore, Md., Automobile Show, Jan. 20-27
Chicago Automobile Show, Jan. 27-Feb. 3
Rapid City, S. D., Automobile Show Feb. 7-10
Springfield, Ill., Automobile Show, Feb. 8-10
Black Hills, S. D., Automobile Show Feb. 15-17
Evansville, Ind., Automobile Show, Feb. 20-24
Denver, Colo., Automobile Show, Feb. 20-28

CONVENTIONS

Natl. Stand. Parts Assoc., Chicago, Oct. 27-28
Motor & Equipment Wholesalers Association, ChicagoOct. 27-28
Motor & Equipment Manufacturers Association, ChicagoOct. 31
International Power & Engineering Conference, New York City....Dec. 3-8

MEETINGS

International Automobile Salon, Paris, FranceOct. 5-16
International Automobile and Motorboat Show, London, England, Oct. 12-21
American Gear Mfg. Association Semi-Annual Meeting, Wilkesburg, Pa., Oct. 17-18
Associated Business Papers Fall Meeting, Chicago, Ill.Oct. 18
Natl. Battery Mfg. Assoc. Meeting, Chicago, Ill.Oct. 19-21
American Petroleum Institute, Annual, ChicagoOct. 24-26
Natl. Automotive Parts Assn., Annual Meeting, ChicagoNov. 2-3
Commercial Motor and Transport Vehicle Exhibition, London, EnglandNov. 2-11
Natl. Automobile Dealers Assoc. Meeting, New York CityJan. 8
Rubber Assoc. Meeting and Banquet, New York.....Jan. 8
S.A.E. Annual Dinner, New York....Jan. 8
Motorcycle & Allied Trades Assoc. Annual Meeting, New York....Jan. 10
S.A.E. Annual Meeting, Detroit....Jan. 22-25

HELICAL SPRING SUSPENSION

is
just arriving



the STEEL
already

for it is
here!

No, we don't imply that we had vision to foresee the present interest in independent wheel suspension and to develop a steel for helical springs. It's merely a happy coincidence that our metallurgists had been working for a long time on a similar problem in connection with railway work—to make steel bars that would give substantially longer life to helical springs.

Study revealed that most failures came from minute hair-line seams in the surface of the bars. Those seams gave fatigue a starting place. After that, breakage was only a matter of time.

After much experiment, a way was developed to make spring-steel bars with a perfect surface, denying a

foothold to fatigue and greatly prolonging the life of helical springs.

Of importance almost equal to the avoidance of surface defects is the matter of decarburization.

Bethlehem has spent a great deal of effort in developing a process to control decarburization in making fine steels, and on this point also, you will find spring-steel bars made by Bethlehem outstanding.

Now, as automotive manufacturers consider individual wheel suspension, Bethlehem is ready with spring-steel that is practically tailor-made for the service. Steel with a background of experience and research that makes it just right for service in automotive helical springs. Bethlehem Steel Company, General Offices: Bethlehem, Pa.



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Automotive Industries

October 28, 1933